SHAWN E. BEARDEN

CURRICULUM VITAE

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Department of Biological Sciences
Idaho State University
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EDUCATION / TRAINING & APPOINTMENTS

Current

- **Professor (**tenured **April 2009)**, Department of Biological Sciences, Idaho State University, Pocatello, ID, June 2015 - present

Past

- **Assistant Chair,** Department of Biological Sciences, Idaho State University, May 2017 – June 2018
- **Director**, ISU Biomedical Research Institute December 2012 - 2016
- **Head**, Advanced Imaging Core Facility, Idaho State University, January 2010 – 2016
- **Associate Professor (tenured April 2009)**, Department of Biological Sciences, Idaho State University, Pocatello, ID, June 2009 - 2015
- **Assistant Professor**, Department of Biological Sciences, Idaho State University, Pocatello, ID, 08/04 - 06/09
- **Postdoctoral Fellow**, Yale University School of Medicine, Training Program in Cellular & Molecular Neurobiology & **Postdoctoral Associate**, John B. Pierce Laboratory (Mentor: Steven Segal, Ph.D), Neurovascular interactions and microvascular blood flow control
  New Haven CT, September 2001 - July 2004
- **Doctor of Philosophy in Exercise Physiology** (Mentor: Bob Moffatt, Ph.D.); Florida State University, Tallahassee FL, May 2000
- **Master of Science in Exercise Science & Health Promotion** (Advisor: Bob Ruhling, Ph.D.); George Mason University, Fairfax VA May 1996
- **Bachelor of Science in Education**; specialty Sports Medicine; University Of Virginia, Charlottesville VA, May 1994

AWARDS & HONORS

- Outstanding Graduate Teacher & Mentor 2013, Department of Biological Sciences, ISU
- Outstanding Researcher 2010-2011, Idaho State University
- Fellow of the American Heart Association (awarded 2009)
- Scientist Development Award, American Heart Association (2004–2007)
- Research Career Enhancement Award, American Physiological Society (2009-2010)

PROFESSIONAL SERVICE

2015-2017	NIH, Hypertension and Microcirculation Study Section member
2014-2015	Co-chair, Study section, Vasc Bio & BP Reg 3, American Heart Association
2011-2014	Executive Council (Councilor), Microcirculatory Society
2012-2014	Physiologic Genomics Awards Committee, American Physiological Society
2011-2012	Research Programs Committee, Western States Affiliate, American Heart Association
2011	Grant reviewer for the Health Research Council of New Zealand
2010-2016	Translational Research Interest Group, American Physiological Society

2009-2011 Research Programs Committee, Pacific Mt Affiliate, American Heart Association
2011-2012 American Heart Association; Study Section, Vascular Biol/Blood Pressure Reg. 1
2008-2012 American Heart Association; Study Section, Vascular Biol/Blood Pressure Reg. 3
2006-2008 Awards Committee, American Physiological Society
2006-2008 Awards Committee, Cardiovascular Section, American Physiological Society
2005-2006 Guest Editor and organizer, special topic journal issue on Aging Microcirculation of Skeletal Muscle, *Microcirculation*, 13(4), 2006.

Editorial Board

2011-2016 *PLoS ONE*, Academic Editor
2010-2015 *Microcirculation*, editorial board member
2012-2013 Journal of Alzheimer's Disease, Associate Editor

Reviewer, Scientific Journals (ad hoc for 25+ journals)

American Journal of Physiology: Endocrinology and Metabolism; PLoS ONE; Physiological Genomics; Circulation Research; Hypertension; Arteriosclerosis, Thrombosis and Vascular Biology; American Journal of Physiology: Heart and Circulatory Physiology; American Journal of Physiology: Regulatory, Integrative and Comparative; Journal of Physiology; Journal of Applied Physiology; Journal of Vascular Research; Medicine and Science in Sports and Exercise; Microcirculation; Journal of Sport Sciences; Journal of Anatomy; BBA – Proteins and Proteomics; Canadian Journal of Physiology and Pharmacology; Neurochemistry International; International Journal of Experimental Pathology; International Journal of Developmental Neuroscience; Cardiovascular Toxicology; DNA & Cell Biology; Journal of Receptors and Signal Transduction; Advances in Physiology Education; Metabolic Brain Disease

COMMITTEES & SERVICE

University Level Service

2013-2016 Director, ISU Biomedical Research Institute
2013 Search Committee, Dean of CoSE
2012-2015 Board Member, ISU Magazine
2011-2016 Advisory committee, Molecular Research Core Facility
2010-2016 Head, ISU Advanced Imaging Core Facility
2011-2012 ISU Research Council, representative for ISU research centers and institutes
2008-2009 Faculty Senator
2008 ISU IT transition committee (transition to Google Mail)

Department Level Service

2018 Chair of 3 hiring search committes
2016 Hiring Search Committee
2014 Chair, Hiring Search Committee, Assistant Lecturer for Anatomy & Physiology
2013-2018 Chair, Strategic Planning Committee
2012-2013 Tenure & Promotion Committee, vice-chair, Department Faculty Member
2012-2015 Research Advisory Committee
2011-2013 Head, Anatomy & Physiology Research Cluster
2011-2012 Graduate Students Admissions Requirements Committee
2011-2013 Affiliate Faculty Committee
2006-2012 Strategic Planning Committee

2006-2008 Committee for Tenure & Promotion Guidelines
2011-2012 Hiring Search Committee for Department Chair
2007-2008 Chair, Hiring Search Committee, Faculty Anatomy & Physiology
2007 Tenure & Promotion Committee, Department Faculty Member
2007 Tenure & Promotion Committee, Department Faculty Member
2006-2008 Hiring Search Committee, Faculty Education
2006-2007 Hiring Search Committee, Faculty Biomedical/histology
2006 Promotion committee, Department Clinical Faculty
2005-2009 Chair, Departmental Web Site Restructure and Development
2005 Tenure & Promotion Committee, Department Faculty
2005 Hiring Search Committee, Faculty Biochemistry
2004-2008 Departmental Recognition Committee

College Level Service
2011-present Tours of AICF for CoSE board and recruiters (approximately quarterly)
2012 Graduate Faculty Representative; Physician Assistant student
2011 Graduate Faculty Representative; Physician Assistant student
2009 Graduate Faculty Representative; Physician Assistant student
2008 Graduate Faculty Representative; Educational Leadership, M.S. student
2007 Graduate Faculty Representative; Psychology, Ph.D. student

Community Outreach
2012-2013 Boyscout/Cubscout tours in my research laboratory
2010 High school presentations in physiology through GK-12 program
2008-2010 Tutorials on the cardiovascular system to local high school Advanced Placement Biology/Physiology students
2008-2009 Classes on blood pressure, stethoscopes, taking pulses to groups of $7^{th}/8^{th}$ graders
2007 Public screening and discussion leader for new film on stem cell research

TEACHING

Annual lectures in Exercise Science for Pharmacy (PharmD) and Physician Assistant programs
BIOL 4471/5571 Fundamentals of Biological Imaging/Biological Imaging
BIOL 3301/3302 Anatomy & Physiology
BIOL 4481 Independent Problems (undergraduate); 1-3 students each semester
BIOL 4499 Human Exercise Physiology
BIOL 5599 Comparative Physiology of Exercise
BIOL 6652 Advanced Studies in Physiology
BIOL 5581 Independent Problems (graduate)
BIOL 6648 Graduate Problems

STUDENT MENTORING & SUPERVISION

Graduate Students; Primary Advisor
(signifies award of a competitive ISU student grant)*
2012-2016 Mathew Osborne, Ph.D. student, Idaho State U. (Biology; ABD); "Pericytes in the regulation of brain endothelial barrier function in health and hyperhomocysteinemia"

2013-2015 Jamie Mayo, Ph.D. student, Idaho State U. (Biology); "Pericyte transformation for enhanced angiogenesis"
2011-2013 *Jamie Mayo, BS/MS student, Idaho State U. (Biology); "Mechanisms of homocysteine transport across the blood-brain barrier".; awardee of undergraduate student internal research grant
2008-2013 **Cheng-Hung Chen, Ph.D. student, Idaho State U. (Biology); "Mechanisms of homocysteine-impaired endothelial cell wound healing"; awardee of two graduate student internal research grants
2007-2011 **Richard Beard, Ph.D. student, Idaho State U. (Biology); "Mechanisms by which homocysteine disrupts endothelial cell-cell junctions"; awardee of two graduate student internal research grants; awardee of AHA ATVB travel award to 2010 AHA Sessions meeting; Postdoc at USF with Dr. Sarah Yuan
2006-2008 *Kritika Chaudhari, M.S., Idaho State U. (Biology); "Role of sex and eNOS in modulating the expression of CGL in heart, brain and skeletal muscle" defended July 2008; awardee of a graduate student internal research grant; continued to Ph.D. Georgia State U.

Graduate Students; Committee Member
2017-present Jessica Whitaker, Ph.D. student, Idaho State U. (Biology)
2010-2015 Gaurav Kaushik, Ph.D. student, Idaho State U. (Biology)
2010-2015 Matthew Dean, Ph.D. student, Idaho State U. (Biology)
2008-2014 Mary Gessel, M.S. student, Idaho State U. (Biology)
2011-2014 Kinta Serve, D.A.student, Idaho State U. (Biology)
2007-2009 Rakash Mandal, M.S. student, Idaho State U. (Biology)
2007-2010 Devon Rasmussen, M.S. student, Idaho State U. (Biology)
2007-NA Olav Sorenson, M.S. student, Idaho State U. (Biology)
2006-2009 Chenghung Chen, Ph.D. student, Idaho State U. (Engineering)
2007-2009 Aynur Gojayeva, M.S. student, Idaho State U. (Biology)
2007-2008 Nishant Mohan, M.S. student, Idaho State U. (Biology)

Undergraduate Student Research Supervision
(signifies award of a competitive ISU student grant)*
2013-2014 Tate Vance, Undergraduate research, Idaho State U.
2012 Andrew Johnson, Undergraduate research, Idaho State U.
2011- 2014 *Bryce Rhodehouse, Undergraduate research, Idaho State U.
-awarded the Biological Sciences Outstanding Student award for 2012-2013
-awarded a summer research fellowship by the American Physiological Society
-awarded a summer research fellowship by Idaho INBRE (declined to accept the above APS award)
2011/12*Rachel Yomtob, Undergraduate research, Idaho State U.
-awarded a summer research fellowship by Idaho INBRE
2011 *Blaine Gibby, Undergraduate INBRE summer fellow, Idaho State U.
2010-2012*Jason Reynolds, Undergraduate INBRE summer fellow, Idaho State U.); awardee of an undergraduate student internal research grant ISU, 1st Prize for Outstanding Visual Presentation of Research by an Undergraduate at the 2011 Idaho Academy of Science meeting, awarded Amgen Scholars Program Fellowship summer 2011 to conduct research at University of Washington.
2010/12*Jamie Henry, Undergraduate research, Idaho State U.)
-awarded the Biological Sciences Outstanding Student award for 2011-2012
-awardee of an undergraduate student internal research grant
2010 Kieran Cushman, Undergraduate research, Idaho State U.
2009/10 *Jason Rasmussen, Undergraduate research, Idaho State U.; awardee of an undergraduate student internal research grant

2008 Janelle Billig, College of William & Mary, research project collaboration
2008 Madeline Wolfert, College of William & Mary, research project collaboration
2008 Lindsay Ambrecht, College of William & Mary, research project collaboration
2007/8 Blair Ashley, College of William & Mary, research project collaboration
2008 Gabrielle Thompson; Pocatello High School, ISU BYRP program
2007 Pace Romney, Undergraduate research, Idaho State U.
2006/7 Caleb Hixson, Undergraduate research, Idaho State U.
2006 Amanda Peterson, Undergraduate research, Idaho State U.
2006 *Tony Rhodes, Undergraduate INBRE summer fellow, Idaho State U.
2006 Brad Swann, Undergraduate research, Idaho State U.
2005 Reiko Hikida, Undergraduate research, Idaho State U.
2005 *Erik Linn, Undergraduate INBRE summer fellow, Idaho State U.
2005 Kirsten Bullington, Undergraduate research, Idaho State U.
2004 James Bertram, Ph.D. student rotation, Yale University
2003 David Chu, Undergraduate research, Yale University
2002/3 Alia Chisty, Undergraduate rotation, Yale University
2002/3 Chloe Diamond, Ph.D. student rotation, Yale University
2001 Paul Henning, M.S. student independent study, Florida State U.
2000 Patrick Marshall, M.S. student independent study, Florida State U.
2000 Craig Acker, M.S. student independent study, Florida State U.

PROFESSIONAL AFFILIATIONS (past)

American Physiological Society
American Heart Association, Fellow
Microcirculatory Society
International Society for Cerebral Blood Flow & Metabolism
Institute of Translational Health Sciences, Scholar
North American Vascular Biology Organization

PEER-REVIEWED PUBLICATIONS

(underline denotes undergraduate student; *italics* denotes graduate student)

1. *Chen CH, Mayo JN*, Gourdie RG, Johnstone SR, Isakson BE, **Bearden SE**. The connexin 43/ZO-1 complex regulates cerebral endothelial F-actin architecture and migration. Am J Physiol Cell Physiol. 2015 Nov 1;309(9):C600-7. doi: 10.1152/ajpcell.00155.2015. Epub 2015 Aug 19. PMID: 26289751
2. *Mayo JN*, **Bearden SE**. Driving the Hypoxia Inducible Pathway in Human Pericytes Promotes Vascular Density in an Exosome Dependent Manner. Microcirculation. 2015 Aug 3. doi: 10.1111/micc.12227. [Epub ahead of print] PMID: 26243428
3. Liu T, Singh R, Rios Z, Bhushan A, Li M., Sheridan PP, **Bearden SE**, Lai, JC, Agbenowu S, Cao S, Daiels CK. Tyrosine phosphorylation of HSC70 and its interaction with RFC mediates methotrexate resistance in murine L1210 leukemia cells. *Cancer Lett.* Feb 1;357(1):231-241, 2015. doi: 10.1016/j.canlet.2014.11.036. Epub 2014 Nov 20.
4. Tawfik A, Markand S, Al-shabrawey M, *Mayo J.*, Reynolds J, **Bearden SE**, Ganapathy V, Smith SB. Alterations of retinal vasculature in cystathionine beta-synthase heterozygous mice, a

model of mild-moderate hyperhomocysteinemia. *Am J Pathol*. 2014 2014 Sep;184(9):2573-85. doi: 10.1016/j.ajpath.2014.05.018. Epub 2014 Jul 10. PMID: 25016930

5. *Mayo JN, Chen CH*, Liao FF, **Bearden SE**. Homocysteine disrupts outgrowth of microvascular endothelium by an iNOS-dependent mechanism. *Microcirculation*. 2014 2014 Aug;21(6):541-50. doi: 10.1111/micc.12133. PMID: 24655004
6. Rhodehouse BC, *Mayo JN, Beard RS Jr, Chen CH*, **Bearden SE**. Opening of the Blood-Brain Barrier before Cerebral Pathology in Mild Hyperhomocysteinemia. *PLoS One*. 2013 May 16;8(5):e63951. doi: 10.1371/journal.pone.0063951. Print 2013. PMID: 23696861
   First demonstration that blood-brain barrier opening predates neurodegeneration and cognitive impairment in hyperhomocysteinemia.
7. Rhodehouse BC, Erickson MA, Banks WA, **Bearden SE**. Hyperhomocysteinemic mice show cognitive impairment without features of Alzheimer's disease phenotype. *Journal of Alzheimer's Disease*. Jan 1;35(1):59-66, 2013. PMID: 23334704. Erratum in 2013;35(4):877
   First studies to elucidate the relation between HHcy and the blood-brain barrier transporters for amyloid beta
8. Lai JCK, Gao W, Bhusham A, **Bearden SE.,** McDougall, Leung SW. Entry of shorr multi-wall carbon nanotubes into dorsal root ganglion (DRG) neurons induces cell death. *Nanotechnology BioSensors, Instruments, Medical, Environment and Energy (Ch5v3: Enironmental Health & Safety, pg 453-456)*.
9. *Beard RS*, Reynolds JJ, **Bearden SE**. Metabotropic glutamate receptor 5 mediates phosphorylation of vascular endothelial cadherin and nuclear localization of β-catenin in response to homocysteine. *Vascular Pharmacology*, 56(3-4):159-167, 2012. PMID: 22285407
   First demonstration of ionotropic-metabotropic glutamate receptor signaling in endothelium
10. *Chen CH, Beard RS,* **Bearden SE**. Homocysteine impairs endothelial cell proliferation by activating metabotropic glutamate receptor 5. *Microcirculation*, 19(4):285-95, 2012. PMID: 22221504
11. Mayo JN*, Beard RS, Price TO, Chen CH, Erickson MA,* Ercal N, Banks WA, **Bearden SE**. Nitrative Stress in Cerebral Endothelium is Mediated by mGluR5 in Hyperhomocysteinemia. *Journal of Cerebral Blood Flow and Metabolism,* 32(5):825-834, 2012. PMID: 22186670
12. *Beard RS*, Reynolds JJ, **Bearden SE**. Hyperhomocysteinemia Increases Permeability Of The Blood-Brain Barrier By NMDA Receptor-Dependent Regulation Of Adherens And Tight Junctions. *Blood*, 118(7):2007-2014, 2011. PMID: 21705496
    First in vivo rescue of the elevated BBB permeability caused by mild hyperhomocysteinemia
13. *Beard RS*, **Bearden SE**. Vascular Complications of Cystathionine β-Synthase Deficiency. *American Journal of Physiology: Heart and Circulatory Physiology*, 300(1):H13-H26, 2011. review article. PMID: 20971760
14. **Bearden SE**, *Beard RS*, Pfau JC. Extracellular transsulfuration generates hydrogen sulfide from homocysteine and protects endothelium from redox stress. *American Journal of Physiology: Heart and Circulatory Physiology*, 299:H1568-H1576, 2010. PMID: 20817827
15. *Moore AW*, **SE Bearden**, and SS Segal. Regional activation of rapid onset vasodilatation in mouse skeletal muscle: Regulation through α-adrenoreceptors. *Journal of Physiology*, 588(17):3321-3331, 2010. PMID: 20624796
    Selected for editorial highlight. Demonstrated that sympathetic nervous system activity provides tonic oversight for regulating spread of conducted vasodilation across branching networks and into inactive muscle regions
16. Olson, K., N. Whitfield, **S.E. Bearden**, J. St. Letger, E. Nilson, Y. Gao, J. Madden. Hypoxic pulmonary vasodilation: A paradigm shift with a hydrogen sulfide mechanism. *American Journal of Physiology: Regulatory, Integrative and Comparative Physiology*, 298:R51-R60, 2010. PMID: 19889863

First demonstration of hydrogen sulfide as a mediator of pulmonary vasodilation and peripheral vessel vasoconstriction, mimicking the effects of hypoxia

17. Cheuvront S.N., **S.E.Bearden**, R.W. Kenefick, B.R. Ely, D.W. Degroot, M.N. Sawka, S.J. Montain. A simple and valid method to determine thermoregulatory sweating threshold and sensitivity. *Journal of Applied Physiology*, 107(1):69-75, 2009. PMID: 19423839
18. Looft-Wilson, R.C., B.S. Ashley, J.E. Billig, M.R. Wolfert, L.A. Ambrecht, and **S.E. Bearden**. Chronic diet-induced hyperhomocysteinemia impairs eNOS regulation in mouse mesenteric arteries. *American Journal of Physiology: Regulatory, Integrative and Comparative Physiology*, 295(1), R59-R66, 2008. PMID: 18448615
19. **Bearden S.E.**, E. Linn, B.S. Ashley, R.C. Looft-Wilson. Age-related changes in conducted vasodilation: effects of exercise training and role in functional hyperemia. *American Journal of Physiology: Regulatory, Integrative and Comparative Physiology*, 293(4), R1717-R1721, 2007. PMID: 17652355
20. **Bearden, S.E.** Advancing age produces sex differences in vasomotor kinetics during and after skeletal muscle contraction. *American Journal of Physiology: Regulatory, Integrative and Comparative Physiology*, 293(3):R1274-R1279, 2007. PMID: 17626125
21. **Bearden, S.E.** Effect of aging on the structure and function of skeletal muscle microvascular networks. *Microcirculation*, 13(4): 305-314, 2006. review article. PMID: 16611595
22. Payne, G.W., **Bearden, S.E.** The microcirculation of skeletal muscle in aging. *Microcirculation*, 13(4): 275-277, 2006. review article. PMID: 16611593
23. **Bearden, S.E.**, S.S. Segal. Neurovascular alignment in adult mouse skeletal muscles. *Microcirculation*, 12(2):161-167, 2005. PMID: 15824038
24. **Bearden, S.E.**, G.W. Payne, A. Chisty, S.S. Segal. Arteriolar network architecture and vasomotor function with aging in mouse gluteus maximus muscle. *Journal of Physiology*, 561(Pt 2):535-545, 2004. PMID: 15388783
25. **Bearden, S.E.**, S.S. Segal. Microvessels promote motor nerve survival and regeneration through VEGF following ectopic reattachment. *Microcirculation*, 11(8):633-644, 2004. PMID: 15726813
26. **Bearden, S.E.**, P.C. Henning, T.A. Bearden, R.J. Moffatt. The slow component of VO2 kinetics in very heavy and fatiguing square-wave exercise. *European Journal of Applied Physiology*, 91:586-594, 2004. PMID: 14677068
27. **Bearden S.E.**, R.J. Moffatt. VO(2) slow component amplitude – response to letter in *Medicine and Science in Sports and Exercise*, 34 (2): 382-382, 2002.
28. **Bearden, S.E.**, R.J. Moffatt. VO2 and heart rate kinetics in cycling: transitions from an elevated baseline. *Journal of Applied Physiology*, 90(6):2081-2087, 2001. PMID: 11356769
29. **Bearden, S.E.**, R.J. Moffatt. Leg electromyography and the VO2-power relationship during bicycle ergometry. *Medicine and Science in Sports and Exercise*. 33(7):1241-1245, 2001. PMID: 11445775
30. **Bearden, S.E.**, R.J. Moffatt. VO2 slow component: to model or not to model? *Medicine and Science in Sports and Exercise*, 33(4):677-680, 2001. PMID: 11283448
31. **Bearden, S.E.**, R.J. Moffatt. VO2 kinetics and the O2 deficit in heavy exercise. *Journal of Applied Physiology*, 88: 1407-1412, 2000. PMID: 10749836
32. Cheuvront, S.N., R.J. Moffatt, K.D. Biggerstaff, **S. Bearden**, P. McDonough. Effect of ENDUROX on metabolic responses to submaximal exercise. *International Journal of Sport Nutrition*, 9: 434-442, 1999. PMID: 10660874
33. **Bearden, S.E.**, S.N. Cheuvront, T.A. Ring, E.M. Haymes. Oxidative stress during a 3.5-hour exposure to 120 kPa(a) PO2 in human divers. *Undersea & Hyperbaric Medicine*, 26(3): 159-164, 1999. PMID: 10485516

Peer Reviewed Published Conference Proceedings

34. C.-H. Chen, K. W. Bosworth, M. P. Schoen, **S. E. Bearden**, D. S. Naidu, and A. Perez. A study of particle swarm optimization on leukocyte adhesion molecules and control strategies for smart prosthetic hand. In 2008 IEEE Swarm Intelligence Symposium (IEEE SIS08), St. Louis, Missouri, USA, September 21-23, 2008.

35. J.C.K. Lai, W. Gao, A. Bhushan, **S.E. Bearden**, L. McDougall, S.W. Leung. Entry of Short Multi-Wall Carbon Nanotubes into Dorsal Root Ganglion (DRG) Neurons Induces Cell Death. Nanotech Conference and Expo, Washington, D.C., May 12-16, 2-13.

Book Chapters

- Segal, S.S. and **Bearden, S.E.** Organization and Control of Circulation to Skeletal Muscle, in *ACSM's Advanced Exercise Physiology*. Eds. C.M. Tipton, M.N. Sawka, C.A. Tate, R.L. Terjung. Lippincott Williams & Wilkins, 2005, 2010, 2012.

GRANTS AND RESEARCH FUNDING

Ongoing

Pending

Completed

- Role: PI (30% effort) 3/15/2012- 2/28/2015 1R15HL106548-01A1
  "Microvascular Dysfunction in Hyperhomocysteinemia" to study the mechanisms by which homocysteine disrupts endothelial-endothelial and endothelial-smooth muscle gap junctional communication and determine if these can be modified by exercise training.

- Role: PI 4/1/2014-10/1/2014 ISU internal
  Awardee in competitive ISU program for one-on-one coaching and instruction on research grant proposal development.

- Role: fellowship mentor (PI: Carolyn Bohach) 8/20/2007 – 2012 P20-RR-016454
  Idea Network of Biomedical Research Excellence; PhD and summer fellowships mentor.

- Role: consultant 12/1/2008-11/30/2011 7R15GM084415-02
  "Epac1 Signaling in Angiogenesis" PI: Dr. Mark Olah, Ohio Northern University

- Role: PI 11/1/2009-12/1/2009 APS RCEA
  American Physiological Society Research Career Enhancement Award. The purpose of this award was to visit the lab of Dr. Brant Isakson to learn techniques for studying microvascular gap junctions in vitro.

- Role: PI 11/1/2009-10/31/2010 ISU internal
  "Mechanisms of action of homocysteine on blood-brain barrier function"

- Role: PI 3/15/2008-3/14/2009 NASA FPK620-06B
  "Slowing Metabolism with Hydrogen Sulfide in Support of Long Duration Space Exploration"

- Role: subawardee 04/25/2006-08/31/2006 P20-RR-016454 IBRI654
  "Isolated Vessel System to Enhance Microvascular Research at ISU"

- Role: PI FRC116 01/25/2005-12/31/2005 ISU internal
  "Single Microvessel Blood Flow Measurements During Intravital Microscopy Using Doppler"

- Role: PI 07/1/2004 – 06/30/2007 AHA 0435389T SDG
  "Effects Of Aging and Exercise Training On Skeletal Muscle Microvasculature"

SYMPOSIA AND SESSIONS

1. Chair and Organizer, "Pericytes in the Neurovascular Unit and During Neurovascular Coupling", Brain 2015, Vancouver BC, CA
2. Chair and Organizer, "Pericyte-Endothelial Interactions", Experimental Biology 2014, San Diego, CA
3. Chair, "Translational Approaches To Microvascular Dysfunction", Vascular Biology (NAVBO/MCS), Hyannis, MA October 2013
4. Chair, symposium on "Faculty Research within Idaho INBRE", summer 2011 Idaho INBRE conference
5. Co-chair, symposium on "Intercellular Communication", fall 2009 International meeting of the Microcirculatory Society

SCIENTIFIC PRESENTATIONS

INVITED

1. **S.E. Bearden.** Scheduled Feb 2014. A microcirculationist's journey with homocysteine. Medical College of Georgia, Atlanta, GA.
2. B. C. Rhodehouse, *J. N. Mayo, R. S. Beard, Jr., C. Chen,* **S. E. Bearden.** 2013. Blood-brain barrier leak precedes brain histopathology and cognitive impairment in mild hyperhomocysteinemia. Experimental Biology, Boston, MA.
3. **S.E. Bearden.** 2011. Your brain on homocysteine: a microcirculationist's perspective. INBRE annual conference, Moscow, ID.
4. *C. Chen, R.S. Beard*, **S.E. Bearden.** 2011. Homocysteine activates mGluR5- and PKC-dependent Cx43 phosphorylation at S368 and impairs proliferation of brain microvascular endothelial cells. Experimental Biology, Washington, D.C.
5. *Beard, R.*, **S.E. Bearden.** 2010. Homocysteine Increases Cerebral EC Barrier Permeability Through the NMDA Receptor In Vitro and In Vivo, American Heart Association Scientific Sessions, Chicago, IL
6. **Bearden, S.E.** 2010. Homocysteine in microvascular disease and dementia: the good, the bad and the stinky. Boise State University, Idaho.
7. **Bearden, S.E.** 2007. Blood Vessels: Aging, Exercise and Rotten Eggs. College of William & Mary, Williamsburg, Virginia.
8. **Bearden, S.E.** 2006. Hydrogen sulfide in vascular physiology. Idea Network of Biomedical Research Excellence Program, Idaho State University.
9. **Bearden, S.E.**, S.S. Segal 2004. Motor Nerve Distribution Determines Feed Artery Control: Evidence from Mouse Gluteus Maximus Muscle. Special topics symposium. Experimental Biology, Washington, D.C.

10. **Bearden, S.E.** 2002. Neurotization and neurovascular alignment following motor nerve implantation. Emory University, Atlanta, Georgia.
11. **Bearden, S.E.** 2002. Angiogenesis and axonal growth in skeletal muscle following motor nerve implantation. US Army Research Institute of Environmental Medicine, Natick, Massachusetts.
12. **Bearden, S.E.** 2001. Oxygen uptake kinetics in cycle ergometry: full speed ahead or a model of restraint? John B. Pierce Laboratory, Yale University Medical School, New Haven, Connecticut.
13. **Bearden, S.E.** 1999. The effects of 1.2 PPO_2 for 3.5 hours on markers of oxidative stress in human divers. Naval Experimental Dive Unit, Panama City, Florida.
14. **Bearden, S.E.** 1999. Oxygen uptake kinetics in heavy exercise and a new model for calculating the O_2 deficit. Naval Experimental Dive Unit, Panama City, Florida.
15. **Bearden, S.E.**, S.N. Cheuvront, I. Swart 1998. Creatine supplementation and human performance. Symposium Sponsored by College of Human Sciences, Florida State Univ.

(INTER)NATIONAL *(*for years post PhD: undergraduate students*, graduate students)*

16. *J. N. Mayo,* **S. E. Bearden**. 2013. Human brain pericytes transform into a stem cell-like phenotype by a density dependent mechanism and increase the rate of wound healing. Vascular Biology (NAVBO/MCS), Hyannis, MA.
17. *M. Osborne,* **S. E. Bearden**. 2013. Pericyte-endothelial junctional communication: An in vitro study exploring possible mechanisms driving changes in endothelial cell phenotypes. Vascular Biology (NAVBO/MCS), Hyannis, MA.
18. B. C. Rhodehouse, *J. N. Mayo, R. S. Beard, Jr., C. Chen,* **S. E. Bearden.** 2013. Blood-brain barrier leak precedes brain histopathology and cognitive impairment in mild hyperhomocysteinemia. Experimental Biology, Boston, MA.
19. C.-H. Chen, K. W. Bosworth, M. P. Schoen, **S. E. Bearden**, D. S. Naidu, and A. Perez. A study of particle swarm optimization on leukocyte adhesion molecules and control strategies for smart prosthetic hand. In 2008 IEEE Swarm Intelligence Symposium (IEEE SIS08), St. Louis, Missouri, USA, September 21-23, 2008.
20. *J. N. Mayo, C. Chen,* **S. E. Bearden**. 2013. Homocysteine disrupts actin organization and vascular outgrowth by an iNOS-dependent mechanism during angiogenesis. Experimental Biology, Boston, MA.
21. *C. Chen, J. N. Mayo,* **S. E. Bearden.** 2013. Connexin43 modulates endothelial wound healing, cell proliferation and locomotion. Experimental Biology, Boston, MA.
22. **S. E. Bearden**, B. C. Rhodehouse. 2012. BBB disruption precedes neuroinflammatory pathology, demyelination, and cognitive impairment in hyperhomocysteinemic mice. Cold Spring Harbor Labs, New York.
23. *R. S. Beard,* J. N. Henry, *T. O. Price*, N. Ercal, W. A. Banks, **S. E. Bearden.** 2011. Homocysteine disrupts NO metabolism in brain microvascular endothelial cells by an mGluR5-dependent mechanism. Experimental Biology, Washington, D.C.
24. *C. Chen, R. S. Beard*, **S. E. Bearden.** 2011. Homocysteine activates mGluR5- and PKC-dependent Cx43 phosphorylation at S368 and impairs proliferation of brain microvascular endothelial cells. Experimental Biology, Washington, D.C.
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REGIONAL

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