

## CURRICULUM VITAE

Name: **Richard J. Rivers, M.D., Ph.D.**

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### EDUCATION:

Fingerlakes Community College, Canandaigua, N.Y.  
1975, A.S.

Clarkson University, Potsdam, N.Y.  
1977, B.S., Chemical Engineering

University of Toledo, College of Medicine, Toledo, Ohio  
1983, M.D.

University of Toledo Hospital, Toledo, Ohio  
Transitional Resident, July 1983 - June 1984.

University of Virginia Health Sciences Center  
Anesthesiology Research Fellow  
July 1984 - December 1985, July 1986 - August 1987, March 1989 - May 1990.

University of Virginia Health Sciences Center  
Resident in Anesthesiology  
January 1986 - June 1986, September 1987 - February 1989.

University of Virginia Health Sciences Center  
Ph.D. in Physiology, Mentor- B.R. Duling, May 1990.

Carey School of Business  
Johns Hopkins University  
Certificate in Business of Medicine, January, 2006

Carey School of Business  
Johns Hopkins University  
Business of Medicine; MBA Program – January 2006 – present

### LICENSURE AND CERTIFICATION:

Certified by the National Board of Medical Examiners - 1984

Diplomate of the American Board of Anesthesiology - October 12, 1990 cert. # 18945

Licensed to practice medicine: Maryland 2001- D0058144

### PROFESSIONAL EXPERIENCE:

Procter and Gamble Co., Folgers Division, Cincinnati, Ohio, coffee product development engineer, 1977-1980

University of Virginia School of Medicine, Department of Physiology, Charlottesville, Virginia,  
Anesthesiology Research Fellow, Physiology Ph.D. candidate, laboratory of B. R. Duling, July 1984 - May 1990

Alfred I. Dupont de Nemours Foundation, Hospital for Children, Wilmington, Delaware, Staff  
Anesthesiologist, April 1989, Kron Medical Locums Tenens

University of Virginia School of Medicine, Department of Anesthesiology, Charlottesville, Virginia,  
Instructor (part time), January 1990 - June 1990

University of Rochester, Strong Memorial Hospital, Department of Anesthesiology, Rochester, New York,  
Senior Instructor, July 1990 - June 1991

University of Rochester, Strong Memorial Hospital, Department of Anesthesiology, Rochester, New York, Assistant Professor, July 1991 - June 1997

University of Rochester School of Medicine and Dentistry, Rochester, New York, Director of TAPS Program (Ph.D. graduate program for persons with MD degree), January 1995 – December 2001

University of Rochester School of Medicine and Dentistry, Department of Pharmacology and Physiology, Rochester, New York, Assistant Professor, January 1996 – April 1999

University of Rochester School of Medicine and Dentistry, Biomedical Engineering Program, Rochester, New York, Adjunct Faculty, January 1996 – December 2001

University of Rochester, Strong Memorial Hospital, Department of Anesthesiology, Rochester, New York, Associate Professor, July 1997 – December 2001

University of Rochester School of Medicine and Dentistry, Department of Pharmacology and Physiology, Rochester, New York, Associate Professor, April 1999 – December 2001

Lattimore Surgical Center, Rochester, New York, **Chief of Anesthesia**, 1991- 1993, November 1999 - December 2001

Lattimore Surgical Center, Rochester, New York, Medical Director, July 2001 - December 2001

Johns Hopkins University, Department of Anesthesiology and Critical Care Medicine, Baltimore Maryland, Associate Professor, January 2002 – present

Wilmer Ophthalmological Institute, Johns Hopkins Hospital, Baltimore Maryland, **Chief of Anesthesia**, March 2002 - present

## TEACHING EXPERIENCE

Laboratory mentor - Ali Hajj-Ali, Ph.D. postdoctoral fellow, 1995 - 1996  
 Patricia Satitpunwaycha, medical student, 1994 - 1995  
 Yifan Chen, M.D., Ph.D. postdoctoral fellow, 1997 - 2001  
 Molly Frame, Ph.D., Assistant Professor, 1997 - 1999  
 Naris Thengcharisi, Ph.D., postdoctoral fellow, 2003 – 2004  
 Victor Miriel, Ph.D., postdoctoral fellow, 2005 – present  
 Timothy Moore, M.D., Ph.D., postdoctoral fellow, 2005 – 2006  
 Stephanie Wolfle, Ph.D., postdoctoral fellow, 2007

Instructor - Advanced Cardiac Life Support, 1985 - 1990

Lecturer - Physiology Dept., University of Virginia, Peripheral Vascular Physiology, Advanced Level Physiology Course  
 Physiology Dept., University of Rochester, Problem set solutions lecturer for cardiavascular section.  
 School of Medicine and Dentistry, University of Rochester, Human Structure and Function Course, rabbit hemorrhage laboratory (PHP550)  
 PHP440 (BME484). Topics in Vascular Biology (2 hours) School of Medicine and Dentistry, University of Rochester 2001

Seminars - *Anesthesiology Department, University of Virginia*,  
 Nausea and vomiting in the outpatient  
 Perioperative arrhythmias.  
 Failed spinal anesthetics.  
 Myocardial preservation during cardiopulmonary bypass.  
 The effect of oxygen tension on endothelial cell dependent responses in the microcirculation.

*Anesthesiology Department, University of Rochester*  
 Electrolytes and anesthesia.  
 Statistics and data analysis in the literature.  
 Outpatient Anesthesia.  
 Autoregulation of blood flow.

Dentists in the operating room. (Eastman Dental School)  
 New techniques in IV sedation. (ENT Dept. 1992)  
 The use of long arm CVP's.  
 Positioning the patient for surgery  
 Diabetes and anesthesia  
 Pulmonary status and anesthesia

*Lattimore Community Surgicenter*  
 Anesthesia concepts in the outpatient setting (December 1999)

*Anesthesiology Department, Johns Hopkins University*  
 Anesthesia for Ophthalmic Surgery  
 Monthly resident teaching sessions 2004 – 2006  
 Grand rounds – February, 2005 Peripheral Control of Blood Flow

## GRADUATE STUDENT THESIS COMMITTEES

Tasmia Diza – 2000 – 2001, Ph.D. student in the Biomedical Engineering Program, University of Rochester, Rochester, NY

Kenneth Cohen – 1995- 2000, Ph.D. student in the Department of Pharmacology/Physiology, University of Rochester, Rochester, NY

Paul Shabaz, M.D., – 1995-2000 Ph.D. student in the Department of Pharmacology/Physiology, University of Rochester, Rochester, NY

David Noren – 1997-1999, Masters Student, Department of Chemical Engineering, University of Rochester, Rochester, NY

Darina Danova-Okpetu – 2005, Ph.D. Candidate, Department of Chemical Engineering, Johns Hopkins University, Baltimore, MD

## INVITED PEER REVIEWER

NIH Study Section AdHoc member. Center for Scientific Review Special Emphasis Panel 2000-2003

AHA Reviewer for NY Affiliate Grant Applications 1996-1998

AHA Reviewer for Northeast Consortium Grant Applications 2001-2002

American Journal of Physiology

Journal of Applied Physiology

European Journal of Physiology

Science

Journal of Cell Biology

Journal of Physiology (London)

Microcirculation

Journal of Ophthalmology

## PROFESSIONAL AND HONOR SOCIETIES AND HONORS

Association of University Anesthesiologists

American Society of Anesthesiologists

International Anesthesia Research Society

Microcirculation Society – **Executive Council member** 2006-present

American Physiological Society

American Association for the Advancement of Science

Maryland Society of Anesthesiologists

Phi Kappa Phi Honor Society

Tau Beta Pi Honor Society  
 Fellow Cardiovascular Section - American Physiological Society  
 Ophthalmic Anesthesia Society – **Executive Board** 2003-present  
**Vice president** 2004-2005  
**President** 2005-2006

## BOARDS

Fingerlakes Community College Foundation Board – 2000 – 2006  
 Ophthalmic Anesthesia Society Board – 2003- present

## COMMITTEES

New Wilmer Building Committee. Johns Hopkins University, Dept. of Anesthesiology and CCM – 2006 - present  
 Computerized Peri-operative Data Record installation committee. **Co-chairman.** Johns Hopkins University, Dept. of Anesthesiology and CCM – 2005 - present  
 Computerized Anesthesia Record vendor selection committee. **Co-chairman.** Johns Hopkins University, Dept. of Anesthesiology and CCM – 2005 - present  
 Service Executive Committee, Johns Hopkins University, Dept. of Anesthesiology and CCM – 2002 – present  
 Call Committee, Johns Hopkins University, Dept. of Anesthesiology and CCM, 2002 – present  
 Wilmer OR Committee, Johns Hopkins University, Dept. of Ophthalmology, 2002- present  
 Manpower Committee, Johns Hopkins University, Dept. of Anesthesiology and CCM, 2003 – present  
 Resident Competence Committee, Johns Hopkins University, Dept. of Anesthesiology and CCM, 2002 – 2004  
 Supply and Equipment Committee, Johns Hopkins University, Dept. of Anesthesiology and CCM, 2003 – present  
 Compensation Committee, **Co-chairman,** Johns Hopkins University, Dept. of Anesthesiology and CCM, 2003-present  
 TAPS Program Committee, University of Rochester, Dept. of Anesthesiology – **Director,** 1994 – 2002  
 Informations Systems Committee, University of Rochester, Dept. of Anesthesiology, Chairman, 1993-2001  
 IDX Billing Committee, University of Rochester, Dept. of Anesthesiology, 2000-2002  
 Executive Computer Committee – University of Rochester, 1997 - 1999  
 Residency Selection Committee – University of Rochester, Dept. of Anesthesiology, 1995 - 1998  
 Integrated Advanced Information Management Systems, Committee on Clinical Practice/Research - 1994-1995  
 University of Rochester, Blood Utilization Committee, 1993 – 1999  
 Medical Advisory Committee for the Latimore Communiity Surgicenter, 1991 – 1993, 1999 - 2002  
 Quality Assurance Committee for the Latimore Communiity Surgicenter, 1991 – 1993, 1999 - 2002  
 Education Policy Committee - University of Rochester, 1990 – 1991  
 Note Service Committee - **Chairman,** Medical College of Ohio, 1981 – 1982

## GRANTS AND AWARDS:

Undergraduate Research Award, NSF, #SM176-02520 1976, \$1000.  
 National Research Service Award, Institutional Grant, #GM97590, 1984-1985, Program director - R. M. Epstein, M.D.  
 National Research Service Award, Individual Grant, #F32-HL07169, 1985-1986, \$24,996 *Arteriolar Endothelium and Smooth Muscle Interactions.*

NIH Physician Scientist Award, NHLBI, #K11-HL01654, 1986-1992, \$262,612, Principle Investigator; *Endothelial control of the Peripheral Circulation.*

NIH First Award, NHLBI, #R29-HL49470, 1994-1999; \$350,000, Principle Investigator, *Integrated arteriole responses and conducted vasomotion.*

American Heart Association, Grant-In Aid, 1994-1997; \$120,000, Principle Investigator, *Vascular communication of pressure and flow changes in the microcirculation.*

Alumni Achievement Award, 2001; 1<sup>st</sup> awardee. Finger Lakes Community College, Canandaigua, New York

NIH Research Grant, NHLBI, # R01HL72922, 2004 – 2008; \$1,250,000, Principle Investigator, *Network Vasomotor Response to Tissue Adenosine*

American Heart Association, Grant-In Aid, #0455730U, 2004-2006; \$120,000, Principle Investigator, *Molecular Mechanisms of Adenosine Network Response Dysfunction after Ischemia-Reperfusion Injury*

#### CHAPTERS OR BOOKS:

Duling, BR and RJ Rivers. 1986. Isolation, cannulation, and perfusion of microvessels. In: "Microcirculatory Technology", edited by C.H. Baker and WH Nastuk, Academic Press, Inc., Orlando, Florida, pp. 265-280.

Rivers, RJ. 1994. A technique for studying physiologically induced conducted responses in-situ. In: "The Resistance Arteries. Integration of regulatory pathways", edited by W. Halpern, J. A. Bevan, J. Brayden, H. Dustan, M. Nelson, and G. Osol, Humana Press, Totowa, NJ, pp. 247-258.

R. Rivers. 1998. Cumulation of conducted responses traveling along separate pathways. In: 20th European Conference on Microcirculation, edited by PH Carpenter, E. Vicaut, and J Guilmot, Bologna, Italy:Litosei-Rastignano, , p. 443-449.

#### ABSTRACTS:

Rivers, RJ, GE Sleek; and BR Duling. 1986. *Is there segmental variation of endothelial cell form, function and attachment?* Proc Internat Union Physiol Sci 16:292.

Rivers, RJ, and BR Duling. 1986. Are the resistance vessels influenced by an endothelium derived *relaxing factor (EDRF)*? Fed Proc 45:196.

Rivers, RJ, GE Sleek; and BR Duling. 1986. *Is there segmental variation of the endothelial cell attachment to the internal elastic lamina (IEL)?* Fed Proc 45:1158.

Rivers, RJ, A Loeb; MJ Peach; and BR Duling. 1987. *The role of endothelial cell derived relaxing factor (EDRF) in microvascular control is modulated by physiological levels of oxygen.* Fed Proc 46:499.

Rivers RJ, RA Johns. 1989 *The effect of sodium nitroprusside upon platelet function* (letter). Anesthesiology 71:805

Rivers, RJ and BR Duling. 1990. *Functional endothelial cell muscarinic receptors are present on the luminal surface of arterioles.* FASEB J. 4:A554 7.

Rivers, RJ and BR Duling. 1991. *Dilations induced by the selective stimulation of arteriolar endothelium are partially inhibited by arginine analogs.* FASEB J. 5:A396

Rivers, RJ. 1992 *Dilations conducted upstream from the site of muscarinic arteriolar stimulation are mediated neither by arginine nor cyclooxygenase metabolites.* FASEB J. 6:A2083

Rivers, RJ. 1992 *Activation of muscarinic receptors on the luminal aspect of endothelium causes local and conducted dilations in arterioles of the cheek pouch of anesthetized hamsters.* Int J Microcirc. Clin. Exp. 11:S146

Rivers, RJ. 1993 *Different muscarinic receptor subtypes initiate local and conducted arteriolar dilations.* FASEB J., 7:A900

Rivers, RJ. 1994 *A technique for studying physiologically induced conducted responses in-situ.* J. Vasc. Res. 31S1:42

Rivers, RJ. 1995 *The level of vascular tone does not affect conducted arteriolar dilations.* FASEB J. 9:A18.

Rivers, RJ. 1995 *Non-additive components of conducted vasomotor responses.* Microcirculation 2:73.

- Rivers, RJ. 1996 *Maximum conducted signal transmitted in a single arteriole*. FASEB J. 10:A55.
- Rivers, RJ. 1996 *Late onset remote vasomotor responses caused by nitroprusside and adenosine*. Microcirculation 3:103.
- Rivers, RJ. 1996 *Pressure transients causing remote vasoconstriction*. J.Vasc.Res. 33S2:10
- Rivers, RJ. 1996 *Limitations of vasodilatory signals communicated in arterioles*. Anesthesiology 85:A561
- Rivers, RJ. 1997 *Cumulation of methacholine and myogenic conducted responses*. Microcirculation 4:161
- Rivers, RJ. 1997 *Myogenic response causing remote vasoconstriction*. FASEB 11:A41
- Rivers, RJ. 1997 *Arteriolar myogenic responses are conducted to remote arteriolar locations*. Anesthesiology 87:A583
- Chen, Y, RJ Rivers. 1998 *Sodium nitroprusside potentiates methacholine-induced, NO-independent, conducted vasodilation*. FASEB J. 12:A13
- Chen, Y, RJ Rivers. 1998 *Adrenomedullin peptide fragment 26-52 attenuates methacholine-induced conducted vasodilation*. J Vasc Res 35:16
- Frame, MD, RJ Rivers 1998 *Changes in arteriolar flow with endotoxin or nitroprusside*. Anesthesiology 89:A660
- Rivers, RJ 1998 *Conducted dilations caused by arteriolar occlusions*. FASEB J. 12:A11
- Chen, Y, RJ Rivers 1999 *In-situ measurements of arteriolar diameter and membrane potential with video image analysis and membrane potential sensitive dyes*. FASEB J. 13:A31
- Frame, MD, RJ Rivers. 1999 *Cardiac output measurement in hamster using indicator dilution*. FASEB J. 13:A435
- Pudusseri L, RJ Rivers, MD Schultejans-Frame. 2000 *Peripheral flow regulation with elevated, not decreased cardiac index*. FASEB J; 14:A668
- Chen Y, RJ Rivers. 2000 *Brief occlusion of regional blood flow causes hyperpolarization in arteriolar endothelium*. FASEB J. 14:A30
- Rivers RJ. 2000 *Vascular communication is blocked by lidocaine and bupivacaine*. FASEB J. 14:A60.
- Altland O, RJ Rivers, MD Frame. 2001 *Tissue stimulated and direct vessel stimulated remote dilation to adenosine occur through different mechanisms*. FASEB J. 15:A51
- Cameron SJ, MD Frame, RJ Rivers. 2001 *Chloride channel involvement in methacholine stimulated conducted vasomotor responses in arterioles*. FASEB J. 15:A51
- Frame MD, JM Miano, RJ Rivers. 2001 *Technique for targeting adenoviral constructs to microcirculatory vascular smooth muscle, in-vivo*. FASEB J. 15:A34
- Chen Y, RJ Rivers. 2001 *Membrane potential and  $[Ca^{2+}]_i$  of arteriolar endothelium and smooth muscle in response to occlusion* FASEB J. 15:A35
- Rivers RJ, CH Zhang, TW Hein, L Kuo. 2001 *Conducted remote dilations of isolated coronary arterioles require activation of barium-sensitive inward rectifier potassium channels* CIRCULATION 104 (17): 32 150 Suppl. S
- Chen Y, JJ Beckman, RJ Rivers. 2002 *Elevation of intravascular pressure causes vasoconstriction and in increase in  $[Ca^{2+}]_i$  of arteriolar smooth muscle at remote site* FASEB J. 16:A79
- Rivers, RJ. 2002 *Adenosine applied to tissue is more potent than adenosine applied to arterioles* FASEB J. 16:A126
- Rivers RJ, JJ Beckman. 2003 *A role for K-ATP channels in the initiation of the adenosine network response* FASEB J. 17:A139
- Thengchaisri N, RJ Rivers. 2004 *Adenosine Initiates Vascular Network Response via Activation of Sensory Nerve : Role of CGRP and cGMP* FASEB J. 18:A643
- Thengchaisri N, RJ Rivers. 2004 *Role of Adenosine  $A_{2A}$  Receptor on Tissue Adenosine Induced Vascular Network Response* FASEB J. 18:A626
- Thengchaisri N, RJ Rivers. 2005 *Neural network dysfunction underlying impaired vascular communication after ischemia-reperfusion*. FASEB J. 19:A722

- Rivers RJ, N Thengchaisri. 2005 *A role for sensory nerves in muscarinic receptor initiated conducted arteriolar dilation*. FASEB J. 19:A725
- Chen JT, L. Voytenko, RJ Rivers. 2006 *Adenovirus-mediated cell-specific gene expression in the hamster cheek pouch*. J.Vasc.Res. 43(S1):58
- Rivers RJ, N Thengchaisri, TM Moore, L Voytekko. 2006 *Potential role for neural adenosine A2a receptors in the dilations caused by increases in tissue adenosine*. Purinergic Signalling 2:2006
- Mirieli V, RJ Rivers. 2006 *TRPV1 in microvascular regulation* FASEB J. 20: A271
- Thengchaisri N, RJ Rivers 2006 *Vulnerability of conducted vasomotor response to ischemia-reperfusion injury* CIRCULATION 114: 77 Suppl. S
- Mirieli, V, RJ Rivers 2007 *Pharmacological action of the CGRP antagonist, BIBN4096BS, on vasomotor responses in the hamster cheek pouch microcirculation* FASEB J. 2007 21:740.2
- Chen JT, RJ Rivers *Hyaluronidase enhances adenoviral-mediated gene delivery in hamster cheek pouch* FASEB J. 2007 21:1b477
- Rivers RJ, V. Miriel 2007 *Real-time measurements of dilation decay in arterioles* Microcirculation 14:477

#### PUBLICATIONS (peer reviewed):

- 1) Jemison TR, **RJ Rivers**, Cole R. *Incipient vapor nucleation of methanol from an artificial site - uniform superheat*. 1982 J Heat Trans. 104:567-568.
- 2) Lew, MJ; **RJ Rivers**; and BR Duling. *Arteriolar smooth muscle responses are modulated by an intramural diffusion barrier*. 1989 Am. J. Physiol. 257:H10-H16
- 3) Franco-Saenz, R, BK Wolffing, and **RJ Rivers**. *Case report: Hypodipsia and hyponatremia in congenital hydrocephalus*. 1989 Am. J. Med. Sci. 297:385-386, 1989.
- 4) **Rivers, RJ**, AL Loeb, NJ Izzo, Jr., MJ Peach, and BR Duling. *Microcirculatory responses to exogenous endothelial cell-derived relaxing factor*. 1990 Am. J. Physiol. 258:H606-H609
- 5) **Rivers, RJ**, BR Duling. *The arteriolar endothelial cell barrier separates two populations of muscarinic receptors*. 1992 Am. J. Physiol. 262:H1311-1315
- 6) **Rivers, RJ**, *Remote effects of pressure changes in arterioles*. 1995 Am. J. Physiol. 268: H1379-H1382.
- 7) **Rivers, RJ**. *Conducted arteriolar dilations persist in the presence of nitroarginine*. 1997 J.Cardiovasc.Pharmacol. 30 (3):309-312,
- 8) **Rivers, RJ**. *Cumulative conducted vasodilation within a single arteriole and the maximum conducted response*. 1997 Am.J.Physiol. 272:H310-H316
- 9) **Rivers, RJ**. *Components of methacholine initiated conducted vasodilation are unaffected by arteriolar pressure*. 1997 Am.J.Physiol. 272:H2895-H2901
- 10) Satitpunwaycha, P. and **RJ Rivers**. *Volatile anesthetic agents and vascular communication in the microcirculation of the hamster cheek pouch*. 1998 Anesthesiology 88:1062-1070
- 11) **Rivers, RJ**. *Pharmacological study of muscarinic receptor subtypes and arteriolar dilations: a comparison of conducted and local responses*. 1999 J.Cardiovasc.Pharmacol. 33:388-393
- 12) **Rivers, RJ**. and MDS Frame. *Network vascular communication initiated by increases in tissue adenosine*. 1999 J.Vasc. Res. 36:193-200
- 13) Mustafa, SS., **RJ Rivers**, and MDS Frame,. *Microcirculatory basis for non-uniform flow delivery with intravenous nitroprusside*. 1999 Anesthesiology 91:723-731
- 14) Frame MD, JJ Beckman, and **RJ Rivers**. *Technique for using video-microscopy and indicator dilution for repeated measurements of cardiac output in small animals*. 2001 Anesthesiology 94:489-495
- 15) Chen Y and **RJ Rivers**. *Nonvasomotor influence of sodium nitroprusside on arteriolar remote responses to methacholine*. 2001 J. Vasc. Res. 38:219-227
- 16) Chen Y and **RJ Rivers**. *In-situ measurements of arteriolar diameter and membrane potential with video image analysis and membrane potential sensitive dye*. 2001 Microvasc. Res. 62:55-62

- 17) Frame MD, JM Miano, and **RJ Rivers**. *Technique for localized gene transfer in hamster cheek pouch using adenovirus* 2001 *Microcirculation* 8:403-413
- 18) **Rivers RJ**, TW Hien, C Zhang, and L Kuo. *Activation of barium sensitive inward rectifier potassium channels mediates remote dilation of coronary arterioles.* 2001 *Circulation* 104:1749-1753
- 19) Chen Y and **RJ Rivers**. *Arteriolar occlusion causes independent cellular responses in endothelium and smooth muscle.* 2002 *Microcirculation* 9:353-362
- 20) **Rivers RJ** and N Thengchaisri. *Remote arteriolar dilations caused by methacholine: a role for CGRP sensory nerves?* 2005 *Am J Physiol Heart Circ Physiol* 289:H608-H613
- 21) Frame MD, **Rivers RJ**, Altland O, and Cameron S. *Mechanisms initiating integrin-stimulated flow recruitment in arteriolar networks.* *J Appl. Physiol* 102 (6):2279-2287, 2007.
- 22) Blumberg D, Congdon N, Jampel H, Gilbert D, Elliott R, **Rivers R**, Munoz B, and Quigley H. *The effects of Sevoflurane and Ketamine on Intraocular Pressure in Children During Examination Under Anesthesia.* *American Journal of Ophthalmology* 143 (3):494-499, 2007.
- 23) Santhanam L, Lim HK, Lim HK, Miriel V, Brown T, Patel M, Balanson S, Ryoo S, Anderson M, Irani K, Khanday F, Di Costanzo L, Nyhan D, Hare JM, Christianson DW, **Rivers R**, Shoukas A, Berkowitz DE. *Inducible NO Synthase-Dependent S-Nitrosylation and Activation of Arginase1 Contribute to Age-Related Endothelial Dysfunction.* *Circ.Res.* 101 (7):692-702, 2007.

## INVITED SPEAKER

- Rivers, RJ. A technique for studying physiologically induced conducted responses in-situ. 4th International Symposium on Resistance Arteries. 1994 - Sugarbush Inn, Vermont
- Rivers, RJ. Arteriolar membrane potential and [Ca<sup>2+</sup>] during flow occlusion 2001- 7<sup>th</sup> International Symposium on Resistance Arteries. 2001 Muskoka Sands, Ontario, Canada
- Rivers, RJ. Membrane potential and its role in vascular communication. Pharmacology Dept. University of Vermont 1997
- Rivers, RJ. Cumulation of conducted responses traveling along separate pathways. 20<sup>th</sup> European Conference on Microcirculation. 1998 Paris, France
- Rivers, RJ. Vascular Communication, Dept. of Medical Physiology, Texas A&M University Health Science Center March, 1999
- Rivers, RJ. Integration of Flow and Pressure Dependent Responses in the Microcirculation, Biomedical Engineering Society Fall Meeting, Seattle, WA 2000
- Rivers, RJ. Integration of vasomotor responses in the microcirculation, Department of Anesthesiology and Critical Care Medicine, Johns Hopkins University, May 2001
- Rivers, RJ. Life after college, Commencement Address, Fingerlakes Community College, May 2001
- Rivers, RJ. Peri-operative complications. Ophthalmic Anesthesia Society Annual Meeting, Chicago, Illinois. 2004
- Rivers RJ. Anesthesia and orbital blood flow. Ophthalmic Anesthesia Society Annual Meeting, Chicago, Illinois. 2005
- Rivers RJ. Primer on Ophthalmic Anesthesia. University of Louisville. Department of Anesthesia. Louisville, Kentucky. 2006

## MEETINGS ATTENDED

- FASEB and Microcirculation Society Meetings 1985, 1986, 1987, 1988, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007
- Ophthalmic Anesthesia Society Annual Meeting, Chicago, Illinois, 2002, 2003, 2004, 2005, 2006, 2007
- American Society of Anesthesiologists Meetings 1992, 1993, 1994, 1995, 1996, 1997, 1999, 2003, 2004, 2006, 2007
- World Congress of Microcirculation 2007 Milwaukee, Wisconsin
- 8<sup>th</sup> International Symposium on Adenosine and Adenine Nucleotides, 2006, Ferrara, Italy

European Conference on Microcirculation 1992, 1998, 2006

7<sup>th</sup> International Symposium on Resistance Arteries. 2001 Muskoka Sands, Ontario, Canada

FASEB Summer Research Conference. Smooth muscle. 2000 Snow Mass, Colorado

Post Graduate Assembly Meetings 1993, 1995, 1996, 1997 New York, New York

5<sup>th</sup> International Symposium on Resistance Arteries. 1996 Cambridge, England

4<sup>th</sup> International Symposium on Resistance Arteries. 1994 Sugarbush Inn, Vermont

4<sup>th</sup> International Symposium on Mechanisms of Vasodilation 1986. Rochester, Minnesota

IUPS 1986, 1993, 2005

Association of University Anesthesiologists Satellite Symposium on The Role of the Endothelium in Vascular Control 1993, Asheville, North Carolina

Dripps Conference - Philadelphia 1992