# CURRICULUM VITAE

NAME: VIRGINIA H. HUXLEY, PH.D.
J.O. DAVIS CHAIR OF CARDIOVASCULAR RESEARCH
DIRECTOR, NATIONAL CENTER FOR GENDER PHYSIOLOGY

ADDRESS: Department of Medical Pharmacology & Physiology
University of Missouri Medical School
Columbia, MO 65212, USA
tel.: (573) 882-8069 fax (573) 884 4276
e-mail: HuxleyV@health.missouri.edu

BIRTH DATE & PLACE: November 24, 1952; Hamilton, Bermuda

NATIONALITY: United States of America

HIGHER EDUCATION:

1970-74 Hollins University, Hollins, VA 22420
Bachelor of Arts in Chemistry and Computer Science
Dr. S. Boatman PhD, Professor of Chemistry and
Dr. E.K. Hege PhD, Professor of Physics, supervisors.

1974-80 University of Virginia, Charlottesville, VA 22908
Ph.D. in Biophysics
Dr. H. Kutchai PhD, Professor of Physiology, supervisor.

Dissertation:

**Effects of Diffusion Boundary Layers on the Rate of Oxygen Uptake by Human Erythrocytes.**

RELEVANT PREVIOUS EXPERIENCE:

1970-72 Computer Systems Manager, Hollins University, Hollins, VA;
1973-74 Computer Systems Supervisor, Hollins University, Hollins, VA;
1973 Medium Systems Analyst, Burroughs Computer Corp, Winston-Salem, NC
1974-75 Biophysics Program Pre-doctoral student, Medical School Dean's Fellowship, U. Virginia
1975-79 NIH Pre-doctoral Trainee, Dept. Physiology, University of Virginia Med Sch, H Kutchai PhD, mentor; RM Berne MD, Training Grant PI
1979-80 Pratt Pre-doctoral Fellowship, Department of Physiology, University of Virginia Med. Sch, H Kutchai PhD, mentor
1980 NIH Postdoctoral Trainee, Department Endocrinology, Sloan-Kettering Res Inst NY; M Sonenberg MD, PhD, Training Grant PI
1981 NIH Postdoctoral Trainee, Department of Human Physiology, UC-Davis School of Medicine, FE Curry PhD, mentor, C. Cross, MD, Training Grant PI
1981-82 American Heart Association Postdoctoral Fellow, Department of Human Physiology, UC-Davis School of Medicine, FE Curry, PhD, mentor
1982-84 AP Giannini Foundation Postdoctoral Fellowship, Department of Human Physiology, UC-Davis School of Medicine, FE Curry, PhD, mentor
1983-84 Assistant Research Physiologist, Department of Human Physiology, UC-Davis School of Medicine, Davis, CA
1984-90 Assistant Professor, Department of Physiology, UM-Columbia School of Medicine, Columbia, MO
1987-88 Visiting Assistant Professor, Department of Biophysics, U Rochester School of Medicine, Rochester, NY
1990-93 Associate Professor, Department of Physiology, UM-Columbia
1993 - Senior Investigator, Dalton Cardiovascular Research Center, UM-Columbia
1994 - 03 Professor, Department of Physiology, UM-Columbia
1999 - Adjunct Professor, Veterinary Biomedical Sciences, UM-Columbia School of Veterinary Medicine
2002 – 05 Co-director, Center for Gender Physiology and Environmental Adaptation, UM-Columbia
2003 - Professor, Department of Medical Pharmacology & Physiology, UM-Columbia
2003 - Senior Investigator, Center for Diabetes and Cardiovascular Health
2005 - Director, National Center for Gender Physiology, UM-Columbia
2005 Visiting Professor, Chulalongkorn University, Bangkok, Thailand
2006 J.O. Davis Chair of Cardiovascular Research, UM-Columbia
2011 - Director, Pulmonary/Critical Care & Physiology Research Partnership
2011 - Professor, Department of Internal Medicine, UM-Columbia

PRIZES, AWARDS, FELLOWSHIPS:

| | |
|---|---|
| 2015 | Honorary Member, The Medical Alumni Organization, University of Missouri |
| 2012-17 | Associate Editor, Journal of Physiology (London) |
| 2010-18 | Associate Editor, Frontiers in Vascular Physiology |
| 2008-12 | Member NIH Hypertension & Microcirculation (HM) Study Section |
| 2008 | AC Burton Lecturer, University of Western Ontario, Canada |
| 2006 | JO Davis Chair of Cardiovascular Research, UM-Columbia |
| 2005-10 | Associate Editor, American Journal of Physiology: Heart & Circulatory Physiology |
| 2005 | Eugene M. Landis Award of the Microcirculatory Society presented IUPS/APS/EB San Diego, CA |
| 2002 | Hugh Stephenson Award: Research, American Heart Association-Heartland Affiliate |
| 2001-05 | National Organizing Committee for the 2005 meeting of IUPS |
| 2001 | Fellow, Council on Basic Cardiovascular Sciences of the American Heart Association |
| 1999 | Adjunct Professor Veterinary Biomedical Sciences |
| 1999-02 | Chair USNAS commission to IUPS |
| 1998-01 | Associate Editor, Microcirculation, Editorial board of Journal of Vascular Research |
| 1996-97 | President Microcirculatory Society |
| 1996 - | Director, Microvessel Core Facility |
| 1996-99 | Vice Chairman USNAS Commission to International Union of Physiological Sciences (IUPS) |
| 1995-04 | NIH MERIT Award |
| 1994 | Promotion to Full Professor of Physiology |
| 1984 | Microcirculatory Society Travel Award to Oxford, UK meeting |
| 1993 | Chancellor's Award for Outstanding Research and Creative Activity (Biological Sciences) |
| 1993 | Senior Investigator, Dalton Cardiovascular Research Center |
| 1993-96 | Board of Directors, Biomedical Engineering Society |
| 1992-96 | Member NIH HLB Cardiovascular Sciences B Study Section |
| 1991-94 | Executive Council, Microcirculatory Society |
| 1991 | Fellow, Cardiovascular Section of the American Physiological Society |
| 1990 | Medical Student Government Association Teaching Award |
| 1990 | Promotion to Associate Professor Physiology and granted Tenure |
| 1988 | European Microcirculatory Society Travel Award, Maastricht, NT meeting |
| 1988 | The Pharmacia Award of the Microcirculatory Society |
| 1987-92 | American Heart Association Established Investigator Award |
| 1987 | NIH RCDA (declined); Fellow, American Heart Association Council on Circulation |
| 1983, 84 | Certificate of Appreciation, AHA Golden Empire Chapter |
| 1983-86 | NIH New Investigator Research Award |
| 1982, 83 | Re-awarded AHA Postdoctoral Fellowship (declined) |
| 1982-84 | Giannini Foundation Research Fellowship (renewed) , University of California-Davis |
| 1981 | NIH Postdoctoral Trainee, University of California-Davis |
| 1981-82 | American Heart Association Postdoctoral Fellow, University of California-Davis |
| 1980 | NIH Postdoctoral Trainee, Sloan-Kettering Research Institute |
| 1979-80 | Pratt Pre doctoral Fellowship, University of Virginia |
| 1975 | Medical School Dean's Fellowship, University of Virginia |
| 1975-79 | NIH Pre doctoral Trainee, University of Virginia |
| 1974 | Sigma Xi, Hollins College |

**TEACHING**:

Medical Students (since inception of the PBL curriculum):

1) Respiration (3 lectures) (2011- )
2) Biophysics of the Circulation (1985-2009)
3) Special Circulations: Pulmonary & Splanchnic (2004)
4) Capillary Transport (1985-1993, 1995-2009)
5) Splanchnic Circulation (1997-2003)
6) Control of Arterial Pressure (1985-2003)
7) Pulmonary Circulation (1986-1993)
8) Capillary Fluid Dynamics (1994-2001)
9) Endothelium in the Local Control of Blood Flow (1994-2002)
10) Pulmonary Circulation (1994-1996, 2000-2003)
11) Water Movement and Body Fluid Balance (1996–2000)
12) Fetal and Maternal Circulation (1997-2001)

**TEACHING cont**:

13) Cardiovascular Physiology Board Review (1995-2007)
14) Block I Tutor (1996, 1997)
15) Block II Tutor (1993, 1995, 1998, 1999, 2000, 2003)
16) Block III Tutor (2002)
17) Block VI Tutor (1994)
18) Block VII Facilitator (2004 - present)
19) Block I, II, V, VI and VII Facilitator substitute (2016 – present)

Cardiology Fellows:

1) Cardiology Core Curriculum: Pathophysiology of Edema (1992, 93, 94)
2) Cardiology Core Curriculum: Recent Advances in Microvascular Research (1997-2000)

Pulmonary and Critical Care Fellows:

1) How to write a Research Paper (2001, 2016)
2) How to write a Grant Application (2001)
3) Monthly Division Research Meeting/Journal Club (2011- )

PM&R Residents:

1) Research in the Basic Sciences (2005)

Basic Science Graduate Students (last 10 years):

1) Microcirculatory Function (95, 97, 99, 02, 04, 06, 08, 10, 12, 16)
2) Mammalian Physiology (1993-2002)
    a) Microcirculation
    b) Biophysics of the Circulation
    c) Blood Pressure Control
    d) Special Circulations (pulmonary & splanchnic)
    e) Endothelial Cell Signaling
    f) Cell-Cell Communication
    g) Respiratory Physiology (Gas transport in the Lungs and Periphery)
3) Medical Pharmacology & Physiology (MPP) Graduate Problems Course (2004 - 2005, 2011)
4) Renal Problem session with MPP, VBM & Vet students (2008-2010)
5) MPP Journal Club (2008-present)
6) MPP Graduate Student Skills (2010-present)

Undergraduates:

1) Companion Animals AnSci 2140 (2017-present)

**HIGH SCHOOL STUDENTS:**

**KELIE A. TURNER**, SENIOR, POPLAR BLUFF HIGH SCHOOL
Minority High School Research Apprentice Program of the University of Missouri Medical School. Summer 1990.
NIH Minority High School Student Program, 1991-1992
**PRESENT STATUS:** Marketing, Northwest Airlines

**SHENGXIN (SUNNI) SUN**, SOPHOMORE-SENIOR, HICKMAN HIGH SCHOOL; 1999-2001
PRESENT STATUS: GRADUATE STUDENT, UNIVERSITY OF MISSOURI

**CHELSEA PATTERSON**, SENIOR, HICKMAN HIGH SCHOOL; 2005
PRESENT STATUS: GRADUATE STUDENT. LONDON SCHOOL OF ECONOMICS

**ERIN MEYER**, SENIOR, HICKMAN HIGH SCHOOL; 2006
PRESENT STATUS: SENIOR, WASHINGTON UNIVERSITY

**YANG YU**: SENIOR, ROCKBRIDGE HIGH SCHOOL, 2010
PRESENT STATUS: MEDICAL STUDENT, UNIVERSITY OF MISSOURI-COLUMBIA

**KAYLA FRANKS**, SOPHOMORE, HOME SCHOOLED; 2013
PRESENT STATUS: UNDERGRADUATE UT-TYLER

**UNDERGRADUATE AND MEDICAL STUDENTS:**

**UNDERGRADUATE STUDENTS**
1996 - 2001 Student advisor to 12 to 15 Conley Premedical Scholars per annum

**TEACHING cont**:

**ANSARI SAJID MD**, U. MISSOURI, COLLEGE OF ARTS AND SCIENCES. WINTER, 1991
Howard Hughes Undergraduate Research Intern, Summer, 1991, Medical Student, University of Southern IL
PRESENT STATUS: Department of Gastroenterology, St Anthony's Medical Center

**KELIE A. TURNER,** FRESHMAN-JUNIOR, UNIVERSITY OF MISSOURI-COLUMBIA,
NIH Minority Undergraduate Student Program, 1993-1995
PRESENT STATUS: Marketing, Northwest Airlines

**JENNIFER HANSLICK MD**, SOPHOMORE-SENIOR, UNIVERSITY OF MISSOURI-COLUMBIA,
Independent Study student 1993-1995; BS Biological Sciences; MD Northwestern U., 2002; Fellow, Neonatology, Washington University
PRESENT STATUS: Practicing Neonatal-Perinatal Medicine, Grand Junction, CO.

**JESSICA SEARS MD,** FRESHMAN-SENIOR, UNIVERSITY OF MISSOURI-COLUMBIA,
B.S. Interdisciplinary Studies, Summa Cum Laude, Phi Beta Kappa; Conley Scholar 1995-1999; Howard Hughes Undergraduate Research Intern, Summer 97, 98; Rural Scholars Program
PRESENT STATUS: Pediatrician, Springfield, MO

**ERIC I. VOGT MD**, Sophomore-Senior, University of Missouri-Columbia,
Conley Scholar 1993-1997
PRESENT STATUS: Practicing Urologist, Jefferson City, MO

**ANDRE L. MITCHELL MD,** 1ST & 2ND MEDICAL STUDENT, U. MISSOURI-COLUMBIA
Minority Undergraduate Research Apprentice Program of the University of Missouri Medical School. Summer 1990.
MU Research Council Scholar 1996
PRESENT STATUS: Practicing Radiation Oncologist, St. Cloud, MN

**JOSEPH CARMICHAEL MD,** 2ND MEDICAL STUDENT, U. MISSOURI-COLUMBIA
MU Research Council Summer Scholar 1998
PRESENT STATUS: Assistant Clinical Professor, Surgery UC-Irvine School of Medicine

**CHERI DUNHAM,** UNDERGRADUATE, CULVER-STOCKTON COLLEGE
Summer Scholar 1998
PRESENT STATUS: Undergraduate Pre-Medical Student, Culver-Stockton, MO

**MYKISHA JORDAN,** FRESHMAN, UNIVERSITY OF MISSOURI-COLUMBIA, 1997-99
Minority Undergraduate Apprentice Program, 1997-98

**ADRIENNE FLOYD**, Junior, Spelman College
National Science Foundation- Access to Doctoral Education Program, 2000

**MECHELLE D. LEWIS**, **MD**, 2ND MEDICAL STUDENT, U. MISSOURI-COLUMBIA; 2002
PRESENT STATUS: Practicing Hospitalist, WY

**SHENGXIN (SUNNI) SUN**, JUNIOR, U. MISSOURI-COLUMBIA; 2001-2005
PRESENT STATUS: Graduate Student, University of Missouri

**MOHAMMED IRFAN ALI PHD,** JUNIOR-SENIOR, U. MISSOURI-COLUMBIA; 2002-2004, 2010 PHD GEORGIA REGENTS
PRESENT STATUS: Medical Student, American University of the Caribbean School of Medicine

**THAMONWAN (KOI) THAWORNTHAWEEWONG** , SENIOR MU, COMPUTER ENGINEERING, U MISSOURI-COLUMBIA; 2004-2005
PRESENT STATUS: Returned to Thailand on completion of a Masters; in Business, Entrepreneur

**KULLANUD (NOON) SAELOW**, SENIOR MU, COMPUTER ENGINEERING, U. MISSOURI-COLUMBIA; 2004-2005
PRESENT STATUS: Returned to Thailand, Computer Scientist

**SCOTT LUCCHESE MD**, 4TH MEDICAL STUDENT; U. MISSOURI-COLUMBIA, 2005-2006
PRESENT STATUS: Neurology, University of Missouri and Harry S Truman Veterans Administration Hospital

**ANN METTLER**, COLUMBIA COLLEGE LEADERSHIP PROGRAM, 2006

**VLADIMIR GLINSKII**, SOPHOMORE, DISCOVERY FELLOWSHIP IN THE MU HONOR COLLEGE PROGRAM, 2005-2006, 2007
Life Sciences Undergraduate Poster award, 2005; LS UROP Travel award to present at ECMS in Amsterdam, The Netherlands, August 2006; APS Bruce Award Finalist, 2007
PRESENT STATUS: RESIDENT, CORNELL UNIVERSITY

**CHELSEA PATTERSON**, FRESHMAN, UNIVERSITY OF SOUTHERN CALIFORNIA; 2006
LAST KNOWN STATUS: GRADUATE STUDENT, LONDON SCHOOL OF ECONOMICS

**EMILY HUANG** FRESHMAN, DISCOVERY FELLOWSHIP IN THE MU HONOR COLLEGE PROGRAM, 2006-2007
LAST KNOWN STATUS: SENIOR, UNIVERSITY OF PENNSYLVANIA

**TEACHING cont**:

**KYLE MIKEL**: MISSOURI ACADEMY SUMMER PROGRAM AT UNIVERSITY OF MISSOURI, 2007
LAST KNOWN STATUS: SENIOR, NORTHWEST MISSOURI STATE

**YANG YU**: FRESHMAN-SENIOR, UNIVERSITY OF MISSOURI, BA 2015
PRESENT STATUS: MEDICAL STUDENT, UNIVERSITY OF MISSOURI-COLUMBIA

**HYUK JIN LEE**: JUNIOR-SENIOR, UNIVERSITY OF MISSOURI, 2015-17
LAST KNOWN STATUS: SENIOR, UNIVERSITY OF MISSOURI-COLUMBIA

**LEXI HOFFMAN**: FRESHMAN, UNIVERSITY OF MISSOURI, 2016
LAST KNOWN STATUS: SOPHOMORE, UNIVERSITY OF MISSOURI-COLUMBIA

**GRADUATE STUDENTS:**

**VICKY L. TUCKER, PhD**: PHD PHYSIOLOGY 1988:
Recipient of NIH NRSA 1988-1990; Graduate Student Association Superior Graduate Student Award 1987; Travel Award from the National Academy of Science to attend IUPS 1987; UMC Research Council Award 1986; NIH NRSA 1989-91; AHA grant-in-aid 1993-95
LAST KNOWN STATUS: Entrepreneur, Truckee, CA

**D. JOSEPH MEYER JR., MD/PhD:** PHD PHYSIOLOGY 1990; MD 1990:
Recipient of Graduate Student Association Superior Graduate Student Award 1989; 1st place UMC Graduate School Research 1989; UMC Medical School Summer Fellowships 1986-1989; UMC Research Council Award 1987, 88, 89; Residency in Anesthesiology, University of Rochester School of Medicine. FAER grant 1995-97. Assistant Professor of Anesthesiology, University of Missouri School of Medicine, 1994-98.
PRESENT STATUS: Dalton Cardiovascular Research Center Investigator; Associate, Columbia MO, Anesthesiologist & Pain Specialist

**REN-SHENG ZHANG, MD/PhD:** PHD PHYSIOLOGY 1991:
Recipient Talbot Travel Award (Biophysical Society) 1991; Microcirculatory Society Young Investigator Travel Award 1991; Graduate Student Association Superior Graduate Student Award 1990; 2nd place UMC Research Forum Award 1990; 1st place UMC Research Council Award 1990; Postdoctoral Fellow, UMC 1992. Postdoctoral Fellow, OB/GYN, UCLA, 1992-95; Research Physiologist, West Los Angeles VA Medical Center 1996-97; General Medical Resident, U Florida, 1998; Anesthesiology Residence, U Florida, 1999-2001. Assistant Professor Anesthesiology, Chief of Liver Transplant Unit, 2001-2006.
PRESENT STATUS: Private Practice, Liver Transplant Anesthesiology, Los Angeles, CA.

**MARY MCKAY, PhD:** PHD PHYSIOLOGY 1994:
Recipient 5th World Congress Student Travel Award 1991; 4th place UMC Graduate Research & Activities Forum 1992; American Heart Association-Missouri Affiliate, Graduate Assistantship 1992; AHA Graduate Student Assistantship, 1993; NIH NRSA 1995-98, U. Mississippi - Jackson.
PRESENT STATUS: Clinical Research Associate, CT Office of Paragon Biomedical, Inc., Irvine, CA

**BUNDIT THIPAKORN, MSE, PhD:** PHD ELECTRICAL ENGINEERING & COMPUTER SCIENCE 1996:
Recipient Biomedical Engineering Society Travel Award 1992; Biomedical Engineering Society Research Presentation Award 1992, Biomedical Society Travel Award, 1993.
PRESENT STATUS: Retired; Associate Dean and Associate Professor of Computer Engineering, King Mongkut's Institute of Technology - Thonburi, Bangkok, Thailand

**ROLANDO RUMBAUT, MD/PhD:** PHD PHYSIOLOGY 1998
2nd place UMC Graduate Research & Activities Forum, 1994; Graduate Student Association Superior Graduate Student Award, 1997. NIH Clinician Scientist Award 1997-2000; Assistant Professor of Internal Medicine: Pulmonary Division, University of Missouri 1995-2000;
PRESENT STATUS: Professor, Departments of Medicine and Pediatrics, Sections of Pulmonary & Critical Care and Leukocyte Biology, Baylor College of Medicine & Houston VA Medical Center, TX

**SONIA HOUSTON, PhD:** PH.D. PHYSIOLOGY 2002
Ridgel Fellow; NIH Trainee UMC; 2nd place UMC Graduate Research & Activities Forum, 1998; APS travel award fall 1998; NIH Minority Program Fellow 1999 ñ 2000; National Academy of Sciences Travel Award to the IUPS meetings in Christ Church NZ, 2001. Merck Fellow, American Physiological Society Porter Fellowship, 2001-2002.
LAST KNOWN STATUS: Postdoctoral Fellow, Medical College of New York, Valhalla, NY

**JIANJIE WANG, MD/PhD:** PHD PHYSIOLOGY 2005
OSSD (Organization for the Study of Sex Differences) Young Investigator Travel Award 2007
PRESENT STATUS: Associate Professor, SW Missouri State, Springfield, MO

**RIE SASAKI, PHD:** MEDICAL PHARMACOLOGY & PHYSIOLOGY 2007
International travel award, MU student government 2005, 2006; AHA Undergraduate Fellowship, 2006-2007. APS Research Conference Travel Award 2007 Visiting Assistant Professor, Pepperdine University 2008 Assistant Professor Biology, Lynchburg College, Lynchburg, VA 2009-2012
PRESENT STATUS: Assistant Professor Biology, Columbia College, Columbia, MO 2013 -

**THAMONWAN (KOI) THAWORNTHAWEEWONG MS** , MASTER'S STUDENT, COMPUTER ENGINEERING, 2005-2006
LAST KNOWN STATUS: Returned to Thailand on completion of a MBA, Entrepreneur

**JOSHUA SCALLAN, PHD:** DOCTORAL STUDENT MEDICAL PHARMACOLOGY & PHYSIOLOGY, 2005-2010
Graduate Student Association Superior Graduate Student Award, 2010; Benjamin Zweifach Travel award of the Microcirculatory Society, 2010; Postdoctoral Fellow, St Jude's, Memphis, TN, 2010-2011, U Missouri, 2011 –2015
PRESENT STATUS: Assistant Professor, University of South Florida 2015 - present

**SCOTT KEMP, MS:** MS MEDICAL PHARMACOLOGY & PHYSIOLOGY, 2015-17
PRESENT STATUS: PhD student, U South Florida 2018-present

GRADUATE STUDENT COMMITTEES:
Michael W. Brands: Ph.D. Physiology, 1988
Joseph Post: Ph.D. Physiology, 1989
Mary D. S. Frame: Ph.D. Physiology, 1990
Mary E. Schaeffer: M.S. Physiology Area Program, 1990
Lisa Stehno-Bittel: Ph.D. Physiology, 1991
Robert Johnson: Ph.D. Physiology, 1992
Cynthia Liu: Ph.D. Physiology, 1992
Judy Mueller (Delp): Ph.D. Physiology, 1994
Pamela K. Obye: M.S. Physiology, 1992
John Simmons: Ph.D. Physiology, 1994
Jeffrey Jasperse: Ph.D. Physiology, 1997
Paul Fell: M.S. Physiology, 1997
Gabriel Gruionu: M.S. Veterinary Biomedical Sciences, 1998
Melissa Hollis: M.S. Veterinary Biomedical Sciences, 1998
Kawanza Griffith: Ph.D. Physiology, 1999
Tara Jefferies Allen: Ph.D. Physiology, 2000
Regina Randolf Grindstaff: Ph.D. Physiology 2000
Pamela Lloyd: Ph.D. Physiology, 2000
William Schrage: Ph.D. Physiology 2001
Aaron Acker: Ph.D. Physiology 2001
Brian Wamoff: Ph.D. Physiology 2001
Johanna Vallejo: Ph.D. Physiology 2004
Terese Zidon: M.S. Candidate Veterinary Biomedical Sciences
Chen Hou: Ph.D. Physics 2005
Mozow Yusof: MD/Ph.D. Medical Pharmacology & Physiology 2007
Frederick (Spencer) Gaskin: MD/PhD Medical Pharmacology & Physiology 2007
James Augstgen: PhD Medical Pharmacology & Physiology 2009
Perminder Gulani DVM, PhD. Veterinary Biomedical Sciences 2009
Matthew Widzner, Ph.D. Candidate Veterinary Biomedical Sciences: withdrew 2009
Michael Mayo: Ph.D., Physics, 2009
Meredith Jean (Jaye) Stevenson: MS, Medical Pharmacology & Physiology, 2010
Hanrui Zhang, MD, PhD, Medical Pharmacology & Physiology, 2011
Areum Kim, Ph.D., Medical Pharmacology & Physiology, 2012
Chen Cao, Ph.D., Biochemistry, 2015
Shenghua Yuan, PhD, Medical Pharmacology & Physiology, 2016
Srijita Dhar, PhD, Medical Pharmacology & Physiology, 2016
Kevin Coldren, PhD candidate, Biomedical Sciences
Kim To, PhD, Medical Pharmacology & Physiology, 2017
Charmain Fernando, PhD, Medical Pharmacology & Physiology, 2018
Yasmin Kassim, PhD candidate, Electrical Engineering & Computer Science
Hong Yu MS, PhD candidate Medical Pharmacology & Physiology
Steven Hanson, PhD candidate Department of Pathology and Anatomical Sciences

**POSTDOCTORAL FELLOWS:**

**Michael Powers, Ph.D.,** 1988-1991:
NIH T32 recipient, 1988-1990, Recipient American Heart Association, Missouri Affiliate, Postdoctoral Fellowship, 1991; Postdoctoral Fellow UC-SF (1991-93); Research Assistant Physiologist, UC-SF (93-94); Staff Scientist, Affymax Research Institute, Santa Clara, CA (95-98)
LAST KNOWN STATUS: Senior Scientist, Chiron Corporation, Emeryville, CA (98 – 2014, retired)

**Donna A. Williams, Ph.D.,** 1991-1995:
NIH T32 recipient, 1991-1992; Recipient American Heart Association, Missouri Affiliate, Postdoctoral Fellowship, 1993-95; Invited speaker Gordon Research Conference 1993; Editorial Board Amer. J. Physiol. Advances in Physiology Education 1993-96; Microcirculatory Society Young Investigator Award, 1996. AHA grant-in-aid, 1996-99
PRESENT STATUS: Associate Professor & Associate Dean of Nursing, Research and Graduate Education, U Montana

**Sameer Chinoy, FRCS.,** 1993-1994:
PRESENT STATUS: Family Practitioner, Newport, NH

**Arshad Sial, M.D.,** 1997-1998
LAST KNOWN STATUS: Department of Gastroenterology, St Anthony's Medical Center

**JianJie Wang, M.D./Ph.D.,** 1998–1999, 2005 - 2009
OSSD (Organization for the Study of Sex Differences) Young Investigator Travel Award 2007
PRESENT STATUS: Associate Professor, SW Missouri State University

**Olga Glinskii, M.D.,** 2002-2007
NIH T32 recipient 2002 – 2005; Recipient American Heart Association Postdoctoral Fellowship, 2005-2007. Recipient AHA Grant-in-Aid
PRESENT STATUS: Research Assistant Professor, Medical Pharmacology & Physiology, Univ. Missouri

**Kevin Stockard, M.A, M.D.,** 2012-2015
PRESENT STATUS: Fellow, Department of Surgery, University of Missouri

**Rolando Rumbaut, M.D./Ph.D.:** Ph.D. Physiology 1998:
2nd place UMC Graduate Research & Activities Forum, 1994; Graduate Student Association Superior Graduate Student Award, 1997. NIH Clinician Scientist Award 1997-2000; Assistant Professor of Internal Medicine: Pulmonary Division, University of Missouri 1995-2000;
PRESENT STATUS: Professor, Depts Medicine & Pediatrics, Sections of Pulmonary & Critical Care and Leukocyte Biology, Baylor College of Medicine & Michael E. DeBakey VA Medical Center, TX

**Stevan Whitt, MD:**
Fellow: Infectious Disease, 1999-2000; Assistant Professor of Internal Medicine, Divisions of Pulmonary and Critical Care, Infectious Diseases and General Medicine. University of Missouri - Columbia. 2000-present
PRESENT STATUS: Chief of Staff, Associate Professor of Internal Medicine, Divisions of Pulmonary and Critical Care, Infectious Diseases and General Medicine.

**Julie Throop, DVM:**
Resident, Veterinary Internal Medicine. University of Missouri - Columbia. 2001-2005; Masters candidate in Veterinary Pathobiology

**Maseb Kasmi, MD,** 2007-2009
Fellow Internal Medicine, Pulmonary & Critical Care
PRESENT STATUS: Practicing Physician

**Dennis Chairman, MD,** 2012-present
Senior Fellow, Internal Medicine, Pulmonary & Critical Care
PRESENT STATUS: Assistant Clinical Professor of Internal Medicine, Divisions of Pulmonary and Critical Care, University of Missouri

**EXTERNAL EXAMINER:**

**Ning Wu, Ph.D.** Dept. Physiology, University of Arizona 1990

**Amporn (Ann) Jariyapongskul, MS, RN, PhD,** Dept. Physiology, Chulalonghorn University, Bangkok, Thailand, March 2003

**Paul van Haaren, PhD,** Biophysics Program, University of the Netherlands, Amsterdam, The Netherlands, May 2003

**Mohammed Irfan Ali**, Physiology PhD program, LSU Health Sciences Center, New Orleans, LA 2005

**Maria Cornelia Lucis Gerdina Gouverneur PhD,** Medical Physics, University of the Netherlands, Amsterdam, The Netherlands, September 2006

**Ronen Sumagin, PhD,** Bioengineering Program, University of Rochester School of Medicine, Rochester, NY, 2005-2008.

**PUBLIC SERVICE:**

| | |
|---|---|
| 1981-1984 | Middle School Teacher, St. Martin's Church, Davis, CA |
| 1982-1984 | Science Advisor to the Research Round Table, Golden Empire Chapter of the American Heart Association, Sacramento, CA |
| 1991 | Missouri Heart Association Speaker, Columbia, MO & Joplin, MO |
| 1994-1996 | Mid-Missouri Hospice Forum |
| 1994-present | Therapy Dogs International |
| 1994-1999 | Paws with Purpose, Canine Therapy and Drill Team, |
| 1996-1999 | Board of Directors, Paws with Purpose, Board Member, Show-Me-Canine, Canine performance & education |
| 2000-2001 | Dog Trainer with Show-Me Canines |
| 2000-2012 | Therapy Dog International; visits to Elder Care, Candle Light Lodge, Ashland Library |
| 2001-2002 | Vice President, Show-Me Canines |
| 2001-present | Partner and instructor, Columbia Canine Sports Center (CCSC), LLC |
| 2001-2002 | Board member Columbia Kennel Club |
| 2002-2007 | President, Show-Me Canines |
| 2002-2006 | Vice-President, Columbia Kennel Club |
| 2002-2008 | Selection Committee, Hugh Stevens Award, American Heart Association Heartland Chapter |
| 2005-present | Partner/owner, Kanine Ventures Associates (KVA) LLC and Three Chix LLC |
| 2009-present | AKC Canine Good Citizen (CGC) & STAR Puppy Evaluator |
| 2008-2010 | English Springer Spaniel Canine Health Foundation Board member |
| 2010-2012 | Secretary, English Springer Spaniel Canine Foundation |
| 2010-present | APDT Rally Representative |
| 2011-present | Certified Canine Nosework Instructor (CNWI) |
| 2011-present | Evaluator Puppies for Parole Program (P-4-P), Missouri Department of Corrections |
| 2012-present | Science Advisor, English Springer Spaniel Canine Foundation |
| 2013-present | Barn Hunt Association Judge |
| 2017-present | AKC Scentwork Judge |

**PROFESSIONAL SOCIETIES:**

| | | |
|---|---|---|
| Sigma Xi | | |
| American Heart Association | | |
| Abstract reviewer | | 2002-2006, 2008 |
| American Heart Association Council on Circulation | | |
| American Physiological Society, | | |
| Public Affairs Committee | | 1990-1993 |
| Blue Ribbon Panel | | 1997 |
| International Affairs Committee | | 2000-2003 |
| Cardiovascular Section's | NHLBI/Liaison Committee | 2000-2005 |
| | Nominations Committee | 2003-2010 |
| | Steering Committee | 2005 |
| Chair | NHLBI/Liaison Committee | 2005-2006 |
| Biophysical Society, Membrane subgroup | | |
| Biomedical Engineering Society | | |
| Board of Directors | | 1993-1996 |
| European Microcirculatory Society | | |
| International Union of Physiological Sciences (IUPS) | | |
| Commission on Microcirculation | | 1986-1997 |
| Delegate, US delegation IUPS Congress, St. Petersburg, Russia | | 1997 |
| Delegate & Chair, US delegation IUPS Congress, Christ Church, NZ | | 2001 |
| Committee on Physiome and Bioengineering | | 2004-2008 |
| Delegate & Chair, US delegation IUPS Congress, San Diego, CA | | 2005 |
| Microcirculatory Society | | |
| Liaison Committee | | 1987-88, 94-99, |
| Council Member | | 1991-1994 |
| Program Committee | | 1993, 95-96 |
| Publications Committee | | 1993-1995, 2001-2003 |
| Chair | | 2003-2004 |

**PROFESSIONAL SOCIETIES cont:**

Microcirculatory Society cont.

| | |
|---|---|
| | 2009-2011 |
| President-elect, President, Past-President | 1995-1997 |
| Long Range Planning Committee | 1997-2007 |
| Chair, Long Range Planning | 1997-1998 |
| Nominations Committee | 2012-2015 |
| National Organizing Committee for the 2005 IUPS meeting in San Diego, CA | 2000-2005 |
| NAVBO (North American Vascular Biology Organization) | |
| NAVBO, VBí97 Organizing Committee | 1996-1997 |
| Society of General Physiologists | |
| United States National Academy of Sciences Committee for the International | |
| Union of Physiological Sciences (USNAS-IUPS) | 1993-1996 |
| Vice Chair, USNAS-IUPS | 1996-1999 |
| Chair, USNAS-IUPS | 1999-2005 |

**PROFESSIONAL ACTIVITIES:**

| | |
|---|---|
| **Faculty of 1000,** Integrative Physiology | 2010-present |
| **Associate Editor/Reviewing Editor** | |
| Microcirculation | 1998-2004 |
| American Journal of Physiology: Heart & Circulatory Physiology | 2005-2010 |
| Frontiers in Vascular Physiology | 2010-present |
| Journal of Physiology (London) | 2012-2017 |
| **Editorial Board** | |
| American Journal of Physiology: Heart & Circulatory Physiology | 1989-2005, 2011-2014 |
| Microvascular Research | 1991-2003 |
| Microcirculation | 1993-1998 |
| Journal of Vascular Research | 1998-2018 |
| Asian Biomedicine | 2007-present |
| **Reviewer** | |
| American Journal of Physiology: (Heart & Circulation; Cell; Regulatory, Integrative & Comparative; Endocrine & Metabolism) | 1983-present |
| Microvascular Research | 1983-1991 |
| Circulation Research | 1986- |
| Biorheology | 1989- |
| Biophys. Biochem. Acta | 1989- |
| Journal of Applied Physiology | 1991- |
| Journal of Physiology (London) | 1991- |
| Annual Review of Physiology | 1992 |
| Diabetes | 1993, 1995 |
| Annals of Biomedical Engineering | 1994-2006 |
| Hypertension | 1996- |
| Journal of the American Society of Nephrology | 2001 |
| Proceedings of the National Academy of Sciences (US) | 2001, 2004, 2007, 2016, 2017 |
| Microcirculation | 2004 - |
| Cardiovascular Research | 2005 - |
| Journal of Pharmacology and Experimental Therapeutics | 2007 - |
| Arteriosclerosis, Thrombosis and Vascular Biology | 2008 - |
| Journal of General Physiology | 2009 - |
| **Government Service/Peer Review** | |
| NIH HLB Program Project Site Visit: | |
| University of Arizona | 1988 |
| University of Kentucky | 1989 |
| AIBS Space Medicine Peer Review to NASA | 1989-1992 |
| NIH Clinical Sciences C Study Section | 1991 |
| National Cancer Institute | 1992 |
| NIH Cardiovascular B (CVB) Study Section | 1992-1996 |
| Member Panel 4: Stewardship of Public Resources, St. Louis Meeting, | |

**PROFESSIONAL ACTIVITIES cont:**

**Government Service/Peer Review cont.**

| | |
|---|---|
| Framework for Discussion of Strategies for the NIH | 1992 |
| NIH Experimental Cardiovascular Sciences (ECS) special Study Section | 1993 |
| Wellcome Trust | 1994, 98, 00, 06 |
| United States National Committee (USNC) for the International Union of Physiological Sciences (IUPS) | 1993-1996 |
| Vice Chair, USNC for IUPS | 1996-1998 |
| Chair, USNC for IUPS | 1998-2005 |
| NIH DDK Program Project Site Visit: University of Louisiana-Shreveport | 1996 |
| US Delegate to the XXXIII IUPS Congress, Petersburg Russia | 1997 |
| NIH Experimental Cardiovascular Sciences (ECS) Study Section (ad hoc) | 1997 |
| NIH DDK Program Project Site Visit: University of Louisiana-Shreveport | 2001 |
| US Delegate to the XXXIV IUPS Congress, Christ Church, NZ | 2001 |
| NIH DDK Special Study Section | 2002 |
| NIH Modeling and Analysis of Biological Systems (MAB) Study Section, ad hoc | 2005 |
| Rippel Foundation Review | 2006 |
| American Medical Association Seed Grant Applications | 2007 |
| Cancer Research UK | 2007, 2008 |
| NIH Hypertension and Microcirculation (HM) Study Section | 2008-12 |
| NIH Working Group on Target Organ Damage in Hypertension | 2008 |
| Natural Sciences and Engineering Research Council of Canada | 2009 |
| NIH Special Emphasis panel ZRG1 EMNR-B | 2010 |
| NIH Special Emphasis panel ZRG1 VH-D (90) | 2011 |
| NIH Special Emphasis panel ZRG1 VH-D (90) | 2012 |
| NIH Special Emphasis panel ZRG1 DKUS-E 57 R | 2015 |
| NIH Special Emphasis panel ZRG1 DKUS-H (58) R | 2017 |
| Special Emphasis Panel 2018/01 ZRG1 DKUS-H (58) | 2017 |
| NIH Special Emphasis panel 2018/05 ZRG1 BST-H (02) M | 2018 |

**Extra-mural Advisory Boards**

| | |
|---|---|
| University of Arizona Training Grant Advisory Committee | 2006-2014 |
| Center for Gender Physiology, Johns Hopkins University | 2008-present |

**COMMITTEE AND UNIVERSITY SERVICE:**

**University of Missouri (Since 2009)**

| | |
|---|---|
| University of Missouri Research Board, Ad hoc reviewer | 2012 |
| University of Missouri Research Board, | 2012-15 |
| University of Missouri Research Board, Ad hoc reviewer | 2016 |

**University of Missouri-Columbia Campus (Since 2009)**

| | |
|---|---|
| Comparative Medicine Center Task Force | 2004-2009 |
| MU Strategic Plan Committee | 2009 |
| Award Committee 2011 Chancellor's Awards for Outstanding Research & Creative Activity | 2011 |
| Neuroengineering and Cardiovascular Engineering Search committee, College of Engineering | 2016-present |
| Award Committee 2017 Chancellor's Awards for Outstanding Research & Creative Activity | 2017 |
| University of Missouri Provost Search Committee | 2018 |
| Judge for Cardiovascular Research Day | 2019 |

**University of Missouri-Columbia School of Medicine (Since 2009)**

| | |
|---|---|
| Departmental Committee of Research Incentive Funds | 1997-present |
| Internal Advisory Panel: Center for Diabetes and Cardiovascular Health | 2002-present |
| Departmental Tenure and Promotions Committee, Chair | 2004-10; 2014-2018 |
| Departmental Tenure and Promotions Committee | 2010-2012, 2018-present |
| Departmental Faculty Search Committee | 2004-2015 |
| Departmental Space Committee | 2004-2010 |

**University of Missouri-Columbia School of Medicine cont.**

| | |
|---|---|
| Departmental Curriculum Development Committee | 2004-2015 |
| School of Medicine Council of Chairs | 2005-2016 |
| School of Medicine Administrators Council | 2005-2012 |
| Search Group, Burns Chair & CDCH Director | 2006-2008 |
| Advanced Degree Task Group | 2006-2008 |
| MPP Executive Committee | 2006-present |
| Executive Committee of the MD-PhD Program | 2007-2012 |
| Dean's Ad Hoc advisory Committee | 2007-2012 |
| WIMMS Executive Committee | 2015- present |
| MPP Faculty Mentor | 2009-present |
| NEP Faculty Mentor | 2015-present |

**University of Missouri-Columbia Dalton Cardiovascular Research Center**

| | |
|---|---|
| Internal Advisory Committee | 2006-2016 |

## INVITED SPEAKER (Since 2009):

**2009**

UF Hypertension Center, University of Florida, "*Sex and the cardiovascular system: the intriguing tale of how women and men regulate cardiovascular function differently*"; and
*"Sexual dimorphism of the cardiovascular system with respect to Endurance Exercise Training."*

APS Conference: Sex Steroids and Gender in Cardiovascular-Renal Physiology and Pathophysiology, Symposia IV, Controversies in the Vascular Actions of Estradiol.
*"Sex Hormones are not the Sole Determinant of Sex-Differences In Vascular Function"* July 15-18, 2009 Broomfield, Colorado

**2010**

Cardiovascular Research Center/Physiology Department of Temple University School of Medicine, "*Regulation of microvascular exchange: Contribution of sex (lessons learned from juveniles & exercise)*." January 21, 2010.
APS Cross Section Symposium APS History group and WEH symposium in honor of Starling.
*"What Starling did not know about sex and its role in the regulation of volume homeostasis."* Experimental Biology, April 27, 2010 Anaheim CA

**2011**

"*Physiology, Pharmacology, and Pathology of Tissue Fluid Exchange*" Symposium sponsored by Journal of Physiology at the 31st International Symposium on Intensive Care and Emergency Medicine (ISICEM),
Session Moderator and speaker" *Lymphatic fluid exchange: mechanisms and regulation*"
Square – Brussels Conference Center, Glass Entrance, rue Mont des Arts, 1000 Brussels, Belgium, March 22-25

"*Epigenetics, Sex, and Cardiovascular Function with a Focus on Exchange*." Grover Conference, CO, August 2011
Session Chair: APS Fall Conference "Physiology of Cardiovascular Disease: Gender Disparities" Jackson MS October 12-14, 2011

MU Math in Life Sciences Speaker "*Math to the rescue - when microscopes are not sufficient*", November 10, 2011
"*Sex-dependent Differences in Microvascular Exchange: both genes and hormones matter*", Rush University, Chicago, IL November 30, 2011

**2012**

Gordon Conference on Molecular Mechanisms in Lymphatic Function & Disease "*Natriuretic peptide modulation of lymphatic exchange: coupling of barrier and contractile function?*" Ventura Beach, CA, March 2012

**2013**

GRU Medical College of Georgia Department of Medicine, "*Cellular Sex-Identity Impacts Vascular Function in Health and Disease: Is it Time to Reconsider the Paradigm That One Size Fits All*?" February 7, 2013

**2014**

EB 2014: Physiology. Sex/Gender Influences on the Cardiovascular System, "*Influence of sexual dimorphism on endothelial morphology, metabolism and mechanics*". San Diego CA, April 2014

## INVITED SPEAKER cont.

**2016**

Organization for the Study of Sex Differences (OSSD), SESSION IX: SEX DIFFERENCES IN CARDIOVASCULAR DISEASE "*Genomic Sex-specific contribution to Endothelial Cell Phenotype Heterogeneity: from message to metabolism*" Philadelphia, PA, May 2016

Nephrology Research Conference, "*Sex Differences in Vascular Exchange: Medical Applications.* University of Missouri Dialysis Center, October, 2016

**2017**

Department of Medical Physiology and Pharmacology Seminar series, University of Missouri, January 2017

AP Giannini Foundation Postdoctoral Fellow Colloquium, Panel Participant, Stanford School of Medicine, Palo Alto, CA, January 2017

**2018**

VASCULATA 2018 Faculty Joint program at Washington University and University of Missouri School of Medicine. Workshop on Quantitative *In Vivo* Assessment of Microvascular Permeability. July 23-26, 2018.

English Springer Spaniel Foundation: "*State of the English Springer Spaniels in the United States using 2016 Survey Data*", English Springer Spaniel Field Trial Association National Specialty, Purina Farms, September 6, 2018.

American Physiological Society conference on "*Cardiovascular, Renal and Metabolic Diseases: Gender-Specific Implications for Physiology*" Session 7 Sex & Gender Differences in Physiology & Function: The Vasculature. "Genotype Contributes to Sex differences in Micro- and Macrovascular Endothelial Phenotype" Knoxville, TN from September 30- October 3, 2018.

**2019**

MU Interdisciplinary Modeling and Data Science Discussion Group,
"Elements of Cardiovascular Physiology - part 1" February 14, 2019
"Elements of Cardiovascular Physiology - part 2" March 14, 2019

Biomedical Sciences Seminar Series, "Influence of Sex on Endothelial Cell Phenotype, both Macro- and Micro-" School of Veterinary Medicine, University of Missouri, April, 2019

Pathology 2019, Session 4 (Clinical Pathology) Invited speaker, London July 22-24, 2019

American Physiological Society conference on "*Interface of Mathematical Models and Experimental Biology: Role of the Microvasculature* " Symposium 1 Flow in microvascular networks. "*One size fails to fit all: Sex influences the modeling of flux from microvascular networks"*

**RESEARCH AIMS:**

My major objective is to understand the mechanisms controlling water, solute, and respiratory gas transfer between circulating blood and metabolizing tissue. Knowledge of the barriers to transport at the microcirculatory level in living, functioning tissue is required to clarify the processes underlying moment-to-moment regulation of optimal tissue function and the etiology of dysfunctional states. Only then is it possible to design and implement rational strategies for treating pathologies with the progressive goals of first abating, second arresting, and ultimately reversing the disease process.

I obtained a foundation in cellular and membrane transport from studies of the serial barriers to oxygen uptake by human red blood cells as a graduate student. During my postdoctoral fellowship I investigated the extracellular barriers to solute and water movement across capillary endothelium. These structures and the capillary barrier were treated as passive, static structures. I was involved in the design, implementation, and verification of methods to study of transport in living tissue of the frog at the microscopic level. These techniques are foundation of the approaches used to quantify capillary water and solute flux.

Solute and water transfer are the product of "passive" and "cell mediated" mechanisms. While considerable effort has been devoted to elucidation of the passive mechanisms, little has been done to characterize the cell-based processes. Since coming to the University of Missouri, my laboratory has engaged in research in both arenas. We have shown the barrier separating blood from tissue is a dynamic structure whose properties vary in time and space over time scales of seconds to days. We have shown that it is inappropriate to view exchange as a static process occurring at sites of homogeneous structure.

Our global intent is to use this understanding of transport through pathways of microscopic geometry to investigate the relationship between blood supply and metabolic demand.

In conjunction with colleagues in the department, the College of Veterinary Medicine, Dalton Cardiovascular Research Center, Washington University, and University of Rochester, we developed methods to extend these quantitative studies to microvessels up- and downstream of the capillaries in mammalian skeletal muscle, heart, gut, and brain. My personal focus has been on the acute regulation of volume and solute flux in normal tissues. As we have come to understand that microvessel barrier properties are subject to regulation under normal and pathological situations, our laboratory has been approached by clinical colleagues in Nephrology, Surgery, Anesthesia, Cardiology, Pulmonary Medicine, Infectious Disease, and Critical Care Medicine. Together, we have brought the quantitative features of our transport studies to bear to elucidate the cellular and molecular mechanisms involved in structuring and restructuring the barrier under conditions of peritoneal dialysis, following endurance exercise training, in animals with coronary occlusive vessel disease, neurogenic edema, diabetes, cancer metastasis, and in conditions of remote organ (brain) injury following burn. With their interest and our combined clinical and basic science expertise, there is the possibility of realizing our goal of designing and implementing treatments of permeability dysfunction in these disease process. Further, in conjunction with a colleague in Pathology and Research Assistant Professor in MPP, we extended our research models to include a perfused isolated *dura mater* preparation which is allowing us to study the mediation of metastatic cell interactions with the microvasculature of the brain. These studies allowed the two laboratories to bring very different areas of research together in the study of common interest that could not be accomplished by either laboratory alone.

Consequent to the collaborative interactions I have enjoyed at the University of Missouri and in light of fundamental sex-related differences in physiological function and pathophysiology observed by us and others, I facilitated development of the National Center for Gender Physiology. This virtual center is acting as a focus for research scientists here at MU and at institutions where MU scientists currently have collaborations. Peer-reviewed funding for a core group of projects (Cardiovascular, neural, developmental, and musculo-skeletal) has been received from NASA; we are in the process of developing a SCOR proposal focusing on gender differences in fetal origin of adult diseases. In most cases the science is expanded to include the missing gender and builds on existing researcher expertise.

**RESEARCH SUPPORT:**

**Summary at MU as PI (exclusive of Post doctoral and graduate student fellowships):** **$**17,986,378

**Current:**

NIH R01 DK095501-01A1

"Insulin as a Regulator of Microvascular Exchange
Score 20; 9th percentile
06-01-2013 through 05-31-2018; $1,250,000 total direct
No-cost extension through June 30, 2019

NIH T32 5T32OD011126-36

Comparative Medicine Program Training grant (T32 competitive renewal)
Craig Franklin, PI
Virginia Huxley, Mentor

**PENDING:**

NSF

"SCH: INT: Physically-Based Modeling and Noninvasive Monitoring for the Cardiovascular Health of Men and Women"
Giovanna Guidobonni, PI,
Marjorie Skubic, PI
Virginia Huxley, Co-I

NIH R01 HL105328-01

"Integration of vascular network structure and function by quantitative microscopy analysis";
Multi PI; Palaniappan, Kannappan and Virginia H. Huxley
Score 39
06/01/2010-05/31/2015; $3,199,806.46 total direct
to be resubmitted 2019

NIH RO1

"Mechanism by Which CRSBP-1 Ligands Induce Opening of Lymphatic Intercellular Junctions"
Jung S. Huang PI
Virginia Huxley, consultant

**PREVIOUS SUPPORT:**

T32-AR048523

"Exercise and Health: Integration from molecule to patient"
R Terjung, PI; Huxley (Mentor)
7/01/09-6/30/14

NIH R21 HL093068-01A2

"Sexual Dimorphism of Skeletal Muscle Microvascular Function";
Score 22; 10th percentile
July 1, 2010 - June 30, 2012; $275,000 total direct
No-cost extension through June 30, 2013

NIH RO1 HL078816-01A1:

"Microvascular Permeability and Sex"
Score 170; 7th percentile;
June 1, 2005 – May 31, 2010; $1,470,000 (direct); $367,500

NASA

"Human Health from Earth to Space: A NASA-MU Partnership for Understanding Sex Differences in Physiology"
Meredith Hay, P.I., Virginia H. Huxley, Co-P.I.
6-01-02 to 5-31-04; $3,500,000
01-01-04 to 12-31-06; $2,500,000
Virginia H. Huxley, P.I.
01-01-05 to 12-31-10: $1,480,000 NNJ05HF37G

NIH HL-34872
New Investigator Research Award R29:

"Single Capillary Large Molecule Transport";
Score 124; Cardiovascular & Renal Study Section:
July 1, 1983 - June 30, 1986; $106,973.
**Renewed RO1: Score 169; 18th percentile; Experimental & Cardiovascular Sciences-Study Section;**
July 1, 1986 - November 30, 1992; $366,401.
Renewed: Score 119; 1st percentile; Cardiovascular & Renal Study Section;
**January 1, 1993 - December 31, 1997; $502,078.**

NIH R01 HL075186-01

**"Inflammatory Mechanisms in Arterioles and Venules";**
I. H. Sarelius, PI (University of Rochester), V.H.H., Co-I, score 171
October 1, 2003 - September 30, 2007; $1,000,000 total direct; $250,000

NIH HL T32 07094-21-25 Training Grant

" Cardiovascular and Renal Physiology, Pharmacology, and Biochemistry "
June 1, 1995 - May 31, 2000; $915,155
Renewed T32 07094-26-30; score 179:
"Molecular and Biophysical Aspects of Cardiovascular Function and Adaptation"
September 1, 2001 - May 31, 2005; $796,200

NIH PO1 HL 52490-01-10;

"Vascular Cell Biology: Exercise Training and Coronary Disease";
M.H. Laughlin, PI;
Project 4: "Coronary Microvessel Permeability", V.H.H., PI Score 119;
May 1, 1995 - April 31, 2000; $4,620,407; Project 4 $591,971
Renewed: Project 4: "Coronary Microvessel Permeability", V.H.H., PI Score 161;
May 1, 2000 - April 31, 2005; $6,792,912; Project 4 $876,242

NIH RO1 HL- 42528 01-15

"Regulation of Single Capillary Permeability Properties"
Score 168; 7th percentile; Experimental & Cardiovascular Sciences
**January 1, 1990 - December 31, 1994; $546,349.**
Renewed: Score 136; 1.8th percentile; Experimental & Cardiovascular Sciences
January 1, 1995 - December 31, 1999; $610,449
NIH R37 HL-42528: NIH MERIT Award
January 1, 2000 - December 31, 2004; $728,021

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**PREVIOUS SUPPORT CONT.:**

NIH RO1 HL 36088-08:
"Training: Muscle Blood Flow and Capillary Dynamics";
Score 120; 1st percentile; Respiratory & Applied Physiology
M.H. Laughlin, P.I.; V.H.H. Co-investigator:
January 1, 1994 - December 31, 1998: $545,518
Renewed: Score 155; 0.8th percentile; Experimental & Cardiovascular Sciences
January 1, 1998 - November 30, 2003; $839,943

NIH RO1 HL 36531 (declined);
"Exercise: Coronary Reserve, Coronary Heart Disease"
Score 130; Respiratory & Applied Physiology; M.H. Laughlin, PI, V.H.H., Co-I,
April 1, 1995 - March 31, 2000

NIH KO8 HL; Clinical Scientist Development Award (KO8) for Rolando E. Rumbaut, M.D.
"Nitric Oxide as a Regulator of Microvascular Permeability"
September 1, 1997 - August 31, 1999; $225,000NIH Research Career Development Award (declined):
Score 118; 9th percentile; Respiratory & Applied Physiology,
July 1, 1987 - June 30, 1992

American Heart Association Established Investigator (870184)
"Capillary Macromolecule Transport: Sites and Mechanisms"
July 1, 1987 - June 30, 1992; $175,000.

American Heart Association Grant-in-Aid (95007600) (declined);
"Flow-dependent Regulation of Mammalian Capillary Permeability"; score 1.59;
July 1, 1995 - June 30, 1998; $117,590

American Heart Association Missouri Affiliate Grant-in-Aid;
"Plasma Protein Modulation of the Capillary Barrier to Macromolecules";
July 1, 1991 - June 30, 1993; $49,449.

AHA Missouri Affiliate Postdoctoral Fellowship for Michael R. Powers, Ph.D.
"Influence of Native and Modified Albumins on the Capillary Blood-Tissue Barrier to Protein"
July 1, 1991 - June 30, 1992; $20,000

AHA Missouri Affiliate Graduate Fellowship for Mary K. McKay
"Action of Atrial Natriuretic Peptide in the Direct Regulation of Capillary Barrier Properties"
July 1, 1992 - June 30, 1993; $12,000
Competitive renewal
July 1, 1993 - June 30, 1994; $12,000

AHA Missouri Affiliate Postdoctoral Fellowship for Donna A. Williams, Ph.D.
"Spatial/Temporal Modification of Capillary Function"
July 1, 1993 - June 30, 1995; $40,000

AHA Missouri Affiliate Postdoctoral Fellowship for Olga Glinskii, MD.
" Estrogen-dependent remodeling of brain microvascular networks"
July 1, 2005 - June 30, 2007; $83,000

AHA Graduate Fellowship for Rie Sasaki
"Role of Insulin and Sex on Microvessel Exchange"
July 1, 2006 – August 1, 2007

University of Missouri Research Council: Research Leave Award;
September 1, 1991 - August 31, 1992; $20,000.

Chancellor's Award for Outstanding Faculty Research and Creative Activity; $2,000

University of Missouri Research Board;
M.H. Laughlin, PI; V.H. Huxley, Co-Investigator
March 1, 1993 - October 31, 1994; $50,000.

**PREVIOUS SUPPORT CONT:**

Marion Laboratories

"Capillary Exchange Properties: Relationships to Calcium Entry Antagonists"
July 1, 1989 - June 30, 1990; $30,000.
"Plasma Glycoproteins and Determinants of the Microvascular Blood-Tissue Exchange Properties"
July 1, 1990 - June 30, 1991; $17,000.

Monsanto/Searle Laboratories

"Investigation of NSAID on Microvascular Permeability"
August 1, 1998 - July 31, 1999; $45,000.

Eli Lilly/Ligand

Stephan P. Whitt, M.D. and V.H. Huxley, Co-I
$17,500, January 1, 2003 – July 1, 2003

## LIST OF REVIEWED PUBLICATIONS


1. Krakauer TK, Hege EK, Huxley VH, 1974. Computer simulation of feedback control: An undergraduate physiology lab. *Physiology Teacher* **3**:4-5.
2. Krakauer TK, Huxley VH, Hege EK, 1974. Computer simulation of temperature regulation and feedback control as undergraduate physiology exercises. *J. Biol. Phys*. **2**:218-233.
3. Huxley VH, Kutchai H, 1981. The effect of the red cell membrane and a diffusion boundary layer on the rate of oxygen uptake by human erythrocytes. *J. Physiol. (Lond.)* **316**:75-83. PMID: 732088; PMC1248796
4. Kutchai H, Huxley VH, Chandler L, 1982. Determination of fluorescence polarization of membrane probes in intact human erythrocytes. *Biophys. J*. **39**:228-232. PMID: 711588; PMC1328936
5. Curry FE, Huxley VH, 1982. Comparison of the capillary membrane properties determining fluid exchange in single capillaries and whole organs. *Int. J. Microcirc. Clin. Exp.* **1**:381-391. PMID: 676528
6. Huxley VH, Kutchai H, 1983. Effect of diffusion boundary layers on the initial uptake rate of $O_2$ by red cells. Theory vs. experiment. *Microvasc. Res.*, **26**:89-107. PMID: 688829
7. Curry FE, Huxley VH, Adamson RH, 1983. Permeability of single capillaries to intermediate-sized colored solutes. *Am. J. Physiol.*, **245**:H495-H505. PMID: 660446
8. Huxley VH, Curry FE, 1985. Albumin modulation of capillary permeability: Test of an absorption mechanism. *Am. J. Physiol*., **248**:H264-H273. PMID: 387159
9. Huxley VH, Curry FE, Adamson RH, 1987. Quantitative fluorescence microscopy on single capillaries: a-lactalbumin transport. *Am. J. Physiol*., **252**:H188-H197. PMID: 349292
10. Huxley VH, Curry FE, 1987. Effect of superfusate albumin on single capillary hydraulic conductivity. *Am. J. Physiol*., **252**:H395-H401. PMID: 349292
11. Huxley VH, Tucker, VL, Verburg KM, Freeman RH, 1987. Increased capillary hydraulic conductivity induced by atrial natriuretic peptide. *Circ. Res*., **60**:304-307. PMID: 2952366
12. Huxley VH, Meyer Jr DJ, 1988. Atrial natriuretic peptide (ANP)-induced increase in capillary albumin and water flux. *Adv Exp Med Biol*, **242**:23-31. PMID: 2977524
13. Adamson RH, Huxley VH, Curry FE, 1988. Single capillary permeability to proteins having similar size but different charge. *Am. J. Physiol.*, **254**:H304-H312. PMID: 3257846
14. Tucker VL, Huxley VH, 1988. $O_2$ modulation of single vessel hydraulic conductance. *Am. J. Physiol.*, **254**:H317-H323. PMID: 3257847
15. Huxley VH, 1988. Physiological regulation of capillary permeability. *J. Reconstruct. Microsurg*. **4**:341-346. PMID: 2459381
16. Tucker VL, Huxley VH, 1990. Evidence for cholinergic regulation of microvessel hydraulic conductance during tissue hypoxia. *Circ. Res*., **66**: 517-524. PMID: 2297815
17. Meyer DJ Jr, Huxley VH, 1990. Differential sensitivity of exchange vessel hydraulic conductivity to atrial natriuretic peptide. *Am. J. Physiol*., **258**:H521-H528. PMID: 2137988
18. Sarelius IH, Huxley Meyer DJ Jr, 1990. A direct effect of atrial natriuretic peptide on arterioles of the terminal microvasculature. *Am. J. Physiol*., **258**:R1224-R1229. PMID: 2140026
19. Huxley VH, Meyer DJ Jr, 1990. Capillary permeability: atrial peptide action is independent of "protein effect". *Am. J. Physiol*. **259**: H1351-H1356. PMID: 2146887

20. Huxley VH, Meyer DJ Jr, 1990. Capillary permeability: an albumin component attenuates active changes in $L_p$. *Am. J. Physiol.* **259**:H1357-H1364. PMID: 2146888
21. Huxley VH, Curry FE, 1991. Differential actions of albumin and plasma on capillary solute permeability. *Am. J. Physiol.* **260**:H1645-H1654. PMID: 2035684
22. Zhang R.-S, Huxley VH, 1992. Control of capillary hydraulic conductivity via membrane potential dependent changes in $Ca^{2+}$ influx. *Am. J. Physiol.* **262**:H144-H148. PMID: 1733304
23. Meyer DJ Jr, Huxley VH, 1992. Capillary hydraulic conductivity is elevated by cGMP-dependent vasodilators. *Circ. Res.* **70**:382-391. PMID: 1310449
24. Meyer DJ Jr, Huxley VH, McKay MK, 1992. Volume status influences atrial peptide-induced changes in capillary water conductance. *J. Physiol.* (London) **447**:33-47. PMID: 1593450;
25. Huxley VH, McKay MK, Meyer DJ Jr, Williams DA, Zhang R-S, 1993. Vasoactive hormones and autocrine activation of capillary exchange barrier function. *Blood Cells* **19**:309-324. PMID: 8312566
26. Huxley VH, Curry FE, Powers MR, Thipakorn B, 1993. Differential action of plasma and albumin on transcapillary exchange of anionic solute. *Am. J. Physiol.* **264**: H1428-H1437. PMID: 8498557
27. Williams DA, Huxley VH, 1993. Bradykinin-induced elevations of hydraulic conductivity display spatial and temporal variations in frog capillaries. *Am. J. Physiol.* **264**: H1575-1581. PMID: 8498571
28. Kimura M, Dietrich HH, Huxley VH, Reichner DR, Dacey RG Jr., 1993. Measurement of hydraulic conductivity in isolated arterioles of rat brain cortex. *Am. J. Physiol.* **264**:H1788-H1797. PMID: 8322907
29. Hargrave RH, Thipakorn B, Huxley VH, 1995. Seasonal variation of capillary hydraulic conductivity and of the volume status of the leopard frog (*Rana pipiens*). *Am. J. Physiol*. **268**:R468-R474. PMID: 7864242
30. McKay MK, Huxley VH, 1995. ANP increases capillary permeability to protein independent of perfusate protein composition. *Am. J. Physiol*. **268**:H1139-H1148. PMID: 7900868
31. Rumbaut RE, McKay MK, Huxley VH, 1995. Capillary hydraulic conductivity is decreased by nitric oxide synthase inhibition. *Am. J. Physiology* **268**: H1856-H1861. PMID: 7539589
32. Huxley VH, Williams DA, 1996. Basal and adenosine-mediated protein flux from isolated coronary arterioles. *Am. J. Physiol*. **271**:H1099-H1108. PMID: 8853347
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**ABSTRACTS (Since 2008, material not covered in major manuscripts):**

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