

DEPARTMENT OF MEDICAL PHYSIOLOGY

FACULTY/STAFF ACTIVITIES

1995

Awards and Appointments

Dawson NS (MPHY) joined the Department of Medical Physiology and Microcirculation Research Institute as an Assistant Research Scientist in April 1995. She received her Ph.D. (Botany) in 1989 from the University of Tennessee. Under the direction of Dr. Harris J. Granger, she will perform transmission and scanning electron microscopy analyses of microscopic blood vessels involved in angiogenesis and inflammation.

Hawker JR Jr. (MPHY) joined the Department of Medical Physiology and Microcirculation Research Institute as an Assistant Professor in July 1995. He received an M.S. in Biophysical Sciences from the University of Houston in 1980, an M.S. in Biomedical Sciences from the University of Texas Health Science Center at Houston in 1987, and a Ph.D. in Veterinary Anatomy (Cell and Molecular Biology) from Texas A&M University in 1992. His research will focus on mechanisms of signaling by fibroblast growth factor and transforming growth factor beta in the heart. Dr. Hawker's laboratory is located in Building 4 at the Olin Teague Veteran's Center in Temple.

Kuo L has been recognized in *American Men and Women of Science* for 1995 by the R.R. Bowker Data Collection Center of Oldsmar, Florida.

Kuo L (MPHY) has been re-appointed to the National Institutes of Health Experimental Cardiovascular Sciences Study Section for a three-year term ending June 30, 1998.

Meng F-Y (MPHY) joined the Departments of Surgery and Medical Physiology as a Postdoctoral Research Associate in February 1995. He received his M.D. in Clinical Medicine in 1986 and a Ph.D. in Physiology & Biophysics/Surgery & Burns in 1991 from the Second Military Medical University, Shanghai, China. He will be studying neutrophil-modulated microvascular function in the laboratory of Dr. Yuan Yuan.

Sharma NR (MPHY), Postdoctoral Research Associate, Medical Physiology, will leave the department in June 1995 to join the Residency Program in Internal Medicine at the State University of New York at Stony Brook Health Sciences Center. Dr. Sharma received his M.B.B.S. in 1990 from the University of Bombay, India, and his Ph.D. in Medical Sciences (Medical Physiology) from Texas A&M University Health Science Center in August 1994 under the mentorship of Dr. Michael J. Davis.

Tiefenbacher CP (MPHY) joined the Department of Medical Physiology and Microcirculation Research Institute as a Visiting Assistant Professor in January 1995. She earned her M.D. in 1990 from Ruprecht Karl Universität, Heidelberg, Germany. Dr. Tiefenbacher will study the effects of growth factors on coronary arteriolar tone and venular permeability in the laboratory of Dr. William M. Chilian.

Wehrauch D (MPHY) joined the Department of Medical Physiology and Microcirculation Research Institute as an Assistant Research Scientist in January 1995. She earned her D.V.M. in 1989 from Giessen Justus Liebig University, Giessen, Germany, and a Ph.D. in 1993 from the Max Planck Institute for Clinical and Physiological Research in Bad Nauheim, Germany. Under the guidance of Dr. William M. Chilian, Dr. Wehrauch will be examining the influences of sex hormones on the coronary vasculature, ranging from studies of arterial and arteriolar vascular reactivity to analysis of gene expression.

Wu H (MPHY) joined the Department of Medical Physiology as an Assistant Research Scientist in January 1995. He received his M.D. in 1984 from the Second Military Medical University, Shanghai, China. Under the direction of Dr. Harris J. Granger, Dr. Wu's research focuses on the physiology and pathobiology of postcapillary venules and their role in inflammation, angiogenesis and tumor metastasis.

Grants and Contracts

DeFily DV (MPHY) received a \$132,000 American Heart Association grant entitled "The Role of Leukocyte-Endothelial Cell Interaction in Reperfusion Injury of the Coronary Microcirculation" for the period 07/01/95-06/30/98.

Kuo L (MPHY) received a \$132,000 American Heart Association grant entitled "Pathophysiological Alteration of Coronary Microvascular Responses" for the period 07/01/95-06/30/98.

Meininger CJ (MPHY) received a \$132,000 American Heart Association grant entitled "Mechanisms of Coronary Angiogenesis" for the period 07/01/95-06/30/98.

Meininger GA (MPHY) received a \$1,471 Texas A&M University Faculty Mini-grant Program award entitled "Integrins: novel receptors for signaling vascular responses to tissue injury" for the period 1995-96.

Stoica G (MPHY), **Lawrence M**, and **Granger HJ** (MPHY) received a \$24,995 Texas A&M University Interdisciplinary Research Initiatives Program grant entitled "A New Therapeutic Approach to Restenosis" for the period 06/01/95-05/31/96.

Yuan Y (MPHY) received a \$132,000 American Heart Association grant entitled "Mechanisms of Shear-dependent Modulation of Coronary Microvascular Permeability" for the period 07/01/95-06/30/98.

Publications

Aucoin MM, **Barhoumi R**, **Kochevar DT**, **Granger HJ**, and **Burghardt RC** (MPHY) Oxidative injury of coronary venular endothelial cells depletes intracellular glutathione and induces HSP 70 mRNA. *Am. J. of Physiol.* 268: H1651-H1658, 1995.

Davis MJ, **Kuo L**, **Chilian WM**, and **Muller JM** (MPHY) Isolated, perfused microvessels. In: *Clinically Applied Microcirculation*, edited by J. Barker, et al., CRC Press, 1995.

DeFily DV, and **Chilian WM** (MPHY) Coronary microvascular responses during autoregulation and metabolic hyperemia. *Basic Res. in Cardiol.* 90: 112-118, 1995.

DeFily DV, **Patterson JL**, and **Chilian WM** (MPHY) Endogenous adenosine modulates α_2 - but not α_1 -adrenergic constriction of coronary arterioles. *Am. J. of Physiol.* 268 (*Heart and Circ. Physiol.* 37): H2487-H2494, 1995.

Greiner ST, **Davis KL**, and **Zawieja DC** (MPHY) Effects of reactive oxygen metabolites on lymphatic pumping function. In: *Interstitial, Connective Tissue and Lymphatics*, edited by J. Bert, G.A. Laine, N. McHale, R. Reed and P. Winlove, Portland Press, 1995.

Jones CJH, **Kuo L**, **Davis MJ**, and **Chilian WM** (MPHY) The Masterclass Review Series: Regulation of the coronary microcirculation. *Cardiovasc. Review* 29: 585-596, 1995.

Jones CJH, **Kuo L**, **Davis MJ**, and **Chilian WM** (MPHY) α -adrenergic responses of isolated canine coronary microvessels. *Basic Res. in Cardiol* 90: 61-69, 1995.

- Jones CJH, Kuo L, Davis MJ, DeFily DV, and Chilian WM** (MPHY) The role of nitric oxide in the coronary microvascular responses to adenosine and increased metabolic demand. *Circ.* 91: 1807-1813, 1995.
- Jones CJH, Kuo L, Yuan Y, Chilian WM, and Davis MJ** (MPHY) Coronary microvascular responses to flow. In: *Flow Dependent Regulation of Vascular Function*, edited by J.A. Bevan, et al., Oxford University Press, 1995.
- Kuo L, Davis MJ, and Chilian WM** (MPHY) Longitudinal gradients for endothelium-dependent and -independent vascular responses in the coronary microcirculation. *Circ.* 92: 518-525, 1995.
- Kuo L, Davis MJ, and Chilian WM** (MPHY) Regulation of coronary blood flow: Coordination of heterogeneous control mechanisms in vascular microdomains. *Cardiovasc. Res.* 29: 585-589, 1995.
- Kuo L and Chancellor JD** (MPHY) Adenosine potentiates flow-induced dilation of coronary arterioles by activating K_{ATP} channels in endothelium. *Am. J. of Physiol.* 269: H541-H549, 1995.
- Lundberg MS, and Chilian WM et al.** (MPHY) Actin isoform and α_{1b} -adrenoceptor gene expression in aortic and coronary smooth muscle is influenced by cyclical stretch. *In Vitro Cell Develop.* 31: 595-600, 1995.
- Meininger CJ** (MPHY) Mast cells and tumor-associated angiogenesis. *Chem. Immunol.* 62: 239-257, 1995.
- Meininger CJ, Kelly KA, et al.** (MPHY) Increased stem cell factor release by hemangioma-derived endothelial cells. *Lab. Inves.* 72 (2): 166-173, 1995.
- Meininger GA et al.** (MPHY) Skeletal muscle microcirculation. In: *Clinically Applied Microcirculation*, edited by J. Barker, et al., CRC Press, 1995.
- Peterson TV** (MPHY) Effect of proANF-(31-67) on sodium excretion in conscious monkeys. *Am. J. of Physiol.* 269: R1351-R1355, 1995.
- Sharma NR, and Davis MJ** (MPHY) Substance P-induced calcium entry in endothelial cells is secondary to depletion of intracellular stores. *Am. J. of Physiol.* 268 (*Heart and Circ. Physiol.* 37): H962-H973, 1995.
- Stoica G, Meininger CJ, et al.** (MPHY) Relationship between Moloney murine sarcoma virus tissue tropism and tumor development. *Intl. J. of Oncol.* 6: 75-80, 1995.
- Yuan Y, Mier RA, Chilian WM, Zawieja DC, and Granger HJ** (MPHY) Interaction of neutrophils and endothelium in isolated coronary venules and arterioles. *Am. J. of Physiol.* 268 (*Heart and Circ. Physiol.* 37): H490-H498, 1995.
- Wu G, and Meininger CJ** (MPHY) Impaired arginine metabolism and NO synthesis in coronary endothelial cells of the spontaneously diabetic BB rat. *Am. J. of Physiol.* 269: H1312-H1318, 1995.
- Yuan Y, and Chilian WM** (MPHY) Heart microcirculation. In: *Microcirculation in Clinical Medicine*, edited by J.H. Barker and G. Anderson, CRC Press, 1995.
- Ziche M et al.** (MPHY) Proliferation and migration of endothelial cells is promoted by endothelins via activation of ET_B receptors. *Am. J. of Physiol.* 269: H686-H695, 1995.
- Ziche M, Amerini S, Granger HJ, et al.** (MPHY) Nitric oxide mediates angiogenesis in vivo and endothelial cell growth and migration in vitro promoted by substance P. *J. of Clin. Invest.* 94: 2036-2044, 1994.

Presentations

Faculty of the Department of Medical Physiology and Microcirculation Research Institute presented an overview of departmental and institute research projects to investigators at the Texas A&M Institute of Bioscience and Technology, Houston, Texas, May 1995. Individual presentations were made by **Harris J. Granger**, Professor and Head, **Michael J. Davis**, Associate Professor, **Lih Kuo**, Assistant Professor, **Cynthia J. Meininger**, Assistant Professor, **Gerald A. Meininger**, Professor, **Thomas V. Peterson**, Professor, and **David C. Zawieja**, Assistant Professor.

Chilian WM (MPHY)

- Differential gene expression in coronary arteriolar and arterial smooth muscle. Presented at the Microcirculatory Society meeting, Atlanta, Georgia, April 1995.
- Phenotypic characterization of coronary arteriolar smooth muscle. Presented at Experimental Biology 95 meeting, Atlanta, Georgia, April 1995.
- Control of the coronary microcirculation. Presented at the Tobacco and Health Research Institute, University of Kentucky, Lexington, Kentucky, May 1995.

Czisny LE (MPHY) Signaling of bFGF-induced angiogenesis in cultured coronary venular endothelial cells. Presented at the Microcirculatory Society meeting, Atlanta, Georgia, April 1995.

D'Angelo G (MPHY) Pressure dependence of cytosolic calcium in isolated arterioles. Presented at the Microcirculatory Society meeting, Atlanta, Georgia, April 1995.

Dawson NS (MPHY) Scanning electron microscopy and X-ray microanalysis. Lectures series presented at Western Kentucky University, Bowling Green, Kentucky, September 1995.

DeFily DV (MPHY)

- Platelet-activating factor attenuates endothelial function of isolated coronary arterioles. Presented at the American Heart Association Scientific Conference on the Functional and Structural Aspects of the Vascular Wall, Salt Lake City, Utah, February 1995.
- Effects of platelet-activating factor on isolated coronary arterioles. Presented at the Microcirculatory Society meeting, Atlanta, Georgia, April 1995.
- Coronary α_1 -adrenergic activation elicits endothelium-induced arteriolar constriction. Presented at the American Heart Association's 68th Scientific Sessions, Anaheim, California, November 1995.
- Coronary microcirculation – autoregulatory and metabolic control. Presented at the XV World Congress of the International Society for Heart Research, Prague, Czech Republic, July 1995.

Granger HJ

- Regulation of coronary angiogenesis. Presented at the Federation of American Societies of Experimental Biology Summer Conference, Saxton's River, Vermont, June 1995.
- Regulation of venular permeability. Presented at the Symposium on Blood Vessel Wall Mass Transport of the ASME/AICHE/ ASCE Summer Bioengineering Conference, Beaver Creek, Colorado, June 1995.

Haynes TE (MPHY) Culture and purification of endothelial cells from isolated porcine coronary venules. Presented at the Experimental Biology 95 meeting, Atlanta, Georgia, April 1995.

Ishizaka H

- Acidosis- and hyperosmolarity-induced coronary arteriolar dilation: effect of nitric oxide, prostaglandins, and ATP-sensitive potassium channels. Presented at the Microcirculatory Society meeting, Atlanta, Georgia, April 1995.
- Acidosis-induced coronary arteriolar dilation is mediated by the ATP-sensitive potassium channels. Presented at the American Heart Association's 68th Scientific Sessions, Anaheim, California, November 1995.
- Hyperosmolarity-induced coronary arteriolar dilation is endothelium-dependent. Presented at the American Heart Association's 68th Scientific Sessions, Anaheim, California, November 1995.

Kuo L (MPHY)

- Integrative regulation of flow by adenosine, shear, and myogenic responses in the coronary microvascular network. Presented at the Microcirculatory Society meeting, April 1995.
- Endothelial ATP-sensitive potassium channels modulate flow-induced vasodilation. Presented at the Microcirculatory Society meeting, April 1995.

Lundberg MS (MPHY) Impact of c-Ha-rasEJ transfection on muscle-specific gene expression in cultured aortic cells. Presented at the Society of Toxicology meeting, Baltimore, Maryland, March 1995.

Meininger CJ

- Intercellular mechanisms of angiogenesis. Presented at the Young Vascular Investigators Meeting, San Antonio, Texas, June 1995.
- Intercellular control of angiogenesis. Presented at the Tobacco and Health Research Institute, University of Kentucky, Lexington, Kentucky, September 1995.

Meininger GA (MPHY)

- Distribution of active protein kinase C in smooth muscle. Presented at the Vascular Physiology Group, Bockus Research Institute, Philadelphia, Pennsylvania, January 1995.
- Microtubule disruption alters protein kinase C activation by norepinephrine. Presented at the Microcirculatory Society meeting, Atlanta, Georgia, April 1995.
- Are microtubules involved in the expression of vascular tone? Presented at the Second Asian Congress of Microcirculation, Beijing, People's Republic of China, August 1995.

Mogford JE (MPHY)

- Integrin expression by porcine coronary vascular smooth muscle cells. Presented at the Microcirculatory Society meeting, Atlanta, Georgia, April 1995.
- Synthetic RGD peptide causes dilation in rat skeletal muscle arterioles. Presented at the Microcirculatory Society meeting, Atlanta, Georgia, April 1995.
- Integrin control of vascular smooth muscle tone. Presented at the 11th International Symposium on Cellular Endocrinology, Lake Placid, New York, September 1995.

Muller JM (MPHY)

- Blockade of tyrosine kinase hinders flow-dependent vasodilation of coronary arterioles. Presented at the Microcirculatory Society meeting, Atlanta, Georgia, April 1995.
- Agonist- and flow-induced alterations in endothelial $[Ca^{++}]_i$ of isolated coronary arterioles. Presented at the Experimental Biology 95 meeting, Atlanta, Georgia, April 1995.

Peterson TV (MPHY) Renal effects of nitric oxide synthase inhibition in conscious water loaded dogs. Presented at the Experimental Biology 95 meeting, Atlanta, Georgia, April 1995.

Platts SH (MPHY)

- Effect of microtubule modulating drugs on myogenic tone of skeletal muscle arterioles. Presented at the Microcirculatory Society meeting, Atlanta, Georgia, April 1995.
- A role for microtubules in the expression of spontaneous arteriolar tone. Presented at the 11th International Symposium on Cellular Endocrinology, Lake Placid, New York, September 1995.

Schmiege LM (MPHY) Effects of endotoxin and low-density lipoprotein on the L-arginine transport of endothelial cells. Presented at the Microcirculatory Society meeting, Atlanta, Georgia, April 1995.

Sharma NR

- Modulation of substance P-induced K^+ current in vascular endothelium. Presented at the Biophysical Society meeting, January 1995.
- Modulation of substance P-induced K^+ current in vascular endothelium. Presented at the Microcirculatory Society meeting, Atlanta, Georgia, April 1995.

Tiefenbacher CP (MPHY)

- Basic fibroblast growth factor and heparin cause endothelium-dependent dilation in coronary arterioles. Presented at the American Heart Association's 68th Scientific Sessions, Anaheim, California, November 1995.
- Chronic treatment with 17β -estradiol diminishes endothelium-dependent vasodilation in coronary arterioles. Presented at the American Heart Association's 68th Scientific Sessions, Anaheim, California, November 1995.
- Sepiapterin reverses platelet-activating factor induced endothelial dysfunction. Presented at the American Heart Association's 68th Scientific Sessions, Anaheim, California, November 1995.

Weihrauch D (MPHY) 17β -Estradiol does not affect the mitogen-induced proliferation of coronary and aortic endothelial cells. Presented at the American Heart Association's 68th Scientific Sessions, Anaheim, California, November 1995.

Professional Activities

Bayless KJ (MPHY) attended the 11th Annual Symposium on Cellular Endocrinology, Lake Placid, New York, September 1995.

Dawson NS (MPHY) attended the Scanning Electron Microscopy Short Course at Lehigh University, Allentown, Pennsylvania, June 1995.

Granger HJ (MPHY)

- chaired a meeting of the Associate Editors of the Heart and Circulatory Physiology section of the American Journal of Physiology, Atlanta, Georgia, April 1995.
- served on a Program Project Review Committee for the National Heart, Lung, and Blood Institute of the National Institutes of Health, Bethesda, Maryland, May 1995.

Kuo L (MPHY) participated in a research grant application review meeting of the National Institutes of Health Experimental Cardiovascular Sciences Study Section, Chevy Chase, Maryland, February 1995.

Meininger CJ (MPHY)

- participated in a research grant application review meeting for the National Aeronautics and Space Administration, Washington, DC, November 1994
- participated in a research grant application review meeting for the American Heart Association, Dallas, Texas, January 1995.

Meininger GA (MPHY)

- traveled to Beijing, People's Republic of China to attend and present at the Second Asian Congress for Microcirculation, August 1995.
- traveled to the University of British Columbia, Vancouver, British Columbia, Canada to meet with faculty of the Departments of Physiology and Pharmacology regarding common research interests, August 1995.
- attended the 11th Annual Symposium on Cellular Endocrinology, Lake Placid, New York, September 1995.

Peterson TV (MPHY)

- completed an NIH Fogarty Senior International Fellowship at the University of Copenhagen, Denmark from July 1-September 1, 1995.
- attended the 3rd International Head-Out Water Immersion Symposium, Copenhagen, Denmark, August 1995.

Wehrauch D (MPHY) attended the seminar "Modern Methods in Analytical Morphology and Hands On Workshop," Atlantic City, New Jersey, June 1995.

Zawieja DC (MPHY) attended the American Heart Association, Texas Affiliate grant review meeting as a member of the Central Research Review Committee, Austin, Texas, April 1995.

Zawieja DC (MPHY) attended the First Annual Symposium on Integrated Microscopy, Madison, Wisconsin, September-October 1995.