

# DEPARTMENT OF MEDICAL PHYSIOLOGY FACULTY/STAFF ACTIVITIES

1988

## Awards and Appointments

### **Chilian WM** (MPHY)

- joined the department as an Assistant Professor from Iowa State University. He holds a Ph.D. from the University of Missouri Medical Center.
- was appointed to the American Heart Association Research Review Committee.

**Gawlowski DM** transferred to the Center for Biotechnology, Baylor College of Medicine, The Woodlands, Texas.

**Goodman AH** (MPHY) was appointed to the Editorial Board of the American Journal of Physiology, January, 1987.

### **Granger HJ** (MPHY)

- was appointed to the Committee of Committees for the American Physiological Society.
- was selected as president-elect of the Microcirculatory Society.
- was elected to the Nominating Committee, Cardiovascular Section, of the American Physiological Society.
- received a MERIT AWARD.

**Meininger CJ** was appointed to the position of Postdoctoral Research Associate. She holds a Ph.D. from Texas A&M University.

### **Meininger GA** (MPHY)

- received an American Heart Association-CIBA-GEIGY Established Investigatorship award.
- was appointed to the Nominating Committee, Microcirculatory Society.
- was appointed to the editorial board of The American Journal of Physiology.

**Kuo L** (MPHY) joined the Department of Medical Physiology and Microcirculation Research Institute.

**Peterson TV** (MPHY) was appointed to the Central Research Review Committee, American Heart Association, Texas Affiliate.

**Schelling ME** (MPHY) joined the Department of Genetics and Cell Biology, Washington State University, Pullman, Washington.

**Sikes PV** (MPHY) was awarded \$100 and a plaque from Research Equipment Co. and \$100 from AALAS (American Association of Laboratory Animal Scientists) for her outstanding technical paper: Unanesthetized bats as an experimental model for physiological and microcirculation studies.

**Smith EE** (MPHY)

- was appointed chairman, Task Force, Governor's Commission.
- was selected as president-elect of the American Heart Association-Texas Affiliate.
- was appointed to the Central Research Review Committee and Allocations and Advisory Committee for the American Heart Association, Texas Affiliate.

## Grants

**Benjamin BA** (MPHY)

- received a \$55,000 American Heart Association, Texas Affiliate grant entitled “Cardiac control of renal excretion in the conscious primate” for the period 07/01/85-06/30/87.
- received a \$55,000 American Heart Association, Texas Affiliate grant entitled “Atrial peptides and renal excretion in the conscious primate” for the period 07/01/88-06/30/90.
- received a \$476,831 National Institutes of Health FIRST Award entitled “Atrial natriuretic factor in the conscious monkey” for the period 07/01/88-06/30/93.

**Chilian WM** (MPHY)

- received a \$235,000 National Institutes of Health Research Career Development Award grant entitled “Microcirculatory and neural control mechanisms” for the period 08/01/85-07/31/90.
- received a \$220,000 National Institutes of Health grant entitled “Microcirculatory dynamics in the coronary microcirculation” for the period 12/01/85-03/31/89.
- received a \$170,000 Council for Tobacco Research grant entitled “Pathophysiology of coronary microcirculation” for the period 07/01/85-06/30/88.

**Davis MJ** (MPHY)

- received a \$98,450 American Heart Association grant entitled "Rate sensitivity of myogenic response in isolated arterioles" for the period 07/01/88-06/30/91.
- received a \$442,897 National Institutes of Health FIRST AWARD entitled “Microvascular control of capillary hydrostatic pressure” for the period 02/01/86-03/31/89.

**Gawlowski DM** (MPHY) received a \$27,500 American Heart Association, Texas Affiliate grant entitled “Inflammation and ischemia: An intravital microscopic study” for the period 07/01/86-06/30/88.

**Granger HJ, Davis MJ, Meininger CJ**, Hester RK and Burghardt RC (MPHY) received a \$322,000 State of Texas Higher Education Coordinating Board Advanced Research and Technology Program award entitled “Microvascular cell lines and associated bioproducts” for the period 06/01/88-08/31/90.

**Granger HJ, Lewis RE, Davis MJ, Meininger GA**, Hester RK, **Schelling ME, Gawlowski DM** (MPHY) received a \$159,000 National Institutes of Health - DDR-BRS Shared Instrumentation Grant entitled “An electron microscope for microcirculation research” for the period 03/18/87-03/17/88.

**Lewis RE** (MPHY) received a \$54,887 American Heart Association-Texas Affiliate grant entitled “Endothelial cytoskeletal response to chemotactic factors” for the period 07/01/88-06/30/90.

**Meininger CJ** (MPHY)

- received a \$77,254 National Institutes of Health National Research Service Award entitled “Mechanisms of the angiogenic response to adenosine” for the period 04/01/88-03/31/91.
- received a \$55,000 American Heart Association, Texas Affiliate grant entitled "Mechanisms of coronary angiogenesis" for the period 07/01/89-06/30/91.

**Meininger, GA** (MPHY)

- received a \$97,520 American Heart Association GIA grant entitled “Pathobiology of intestinal vasoregulation in hypertension” for the period 07/01/87-06/30/90.
- received a \$646,000 National Institutes of Health grant entitled "Microvascular control and its role in hypertension" for the period 12/01/84-12/31/92.

**Meininger GA**, Hester RK, **Davis MJ** (MPHY) received a \$299,000 State of Texas Higher Education Coordinating Board Advanced Research and Technology Program grant entitled “Vascular endothelium in microvascular dysfunction” for the period 06/01/88-08/31/90.

**Schelling ME** (MPHY)

- received a \$462,157 National Institutes of Health FIRST Award entitled “Receptor mediation of coronary angiogenesis” for the period 07/01/88-06/30/93.
- received a \$27,500 American Heart Association, Texas Affiliate grant entitled “Molecular control of coronary angiogenesis” for the period 07/01/87-06/30/88.

**Zawieja DC** (MPHY)

- received a \$55,000 American Heart Association-Texas Affiliate grant entitled “Coordination of active lymphatic contractile activity” for the period 07/01/88-06/30/90.
- received a \$20,004 National Institutes of Health National Research Service Award entitled “Activated neutrophils and the extra-cellular matrix” for the period 09/01/87-08/31/89.

## Presentations

The Department of Medical Physiology and Microcirculation Research Institute and the Gastroenterology faculty, Scott and White Clinic, Temple presented a symposium on Splanchnic Circulation, Temple, Texas. Faculty presentations were given by: **Zawieja DC**, **Lewis RE**, **Davis MJ**, **LeSage G** (Clinical Perspectives of Portal Hypertension), **Kulp K** (Clinical Perspectives of Ischemic Bowel Disease), **Dyke W** (Clinical Perspectives of Inflammatory Bowel Disease) and **Stoltenberg P** (Clinical Perspectives of Pancreatitis).

**Benjamin BA**, Metzler CH, **Hurst NL**, Richardson JA and **Peterson TV** (MPHY) Atrial appendectomy attenuates ANF release in conscious monkeys. Presented at the Microcirculatory Society and FASEB meetings in Washington, DC.

**Benoit JN**, **Zawieja DC** and **Granger HJ** (MPHY) Contractile properties of mesenteric collecting lymphatics during periods of enhanced lymph flow. Presented at the Microcirculatory Society and FASEB meetings in Washington, DC.

### **Chilian WM** (MPHY)

- Microvascular sites of coronary resistance. Presented at the Squibb Institute for Medical Research, Princeton, New Jersey.
- Augmented coronary constrictor responses to serotonin in atherosclerotic monkeys. Presented at the American Heart Association, Anaheim, California.
- Physiological role of coronary  $\alpha$ -adrenergic receptors. Presented to the Department of Medicine - Division of Cardiology, University of Texas Medical School - Southwestern, Dallas, Texas.
- Are coronary  $\alpha$ -adrenergic receptors geegaw? Presented at the Texas College of Osteopathic Medicine.

### **Davis MJ** (MPHY)

- Mechanical properties of maximally activated arterioles. Presented at the World Congress for Medical Physics and Biomedical Engineering, San Antonio, Texas.
- Changes in arteriolar wall tension and wall stress during responses to altered perfusion pressure. Presented at a symposium on Regulation in the Microcirculation in Tokyo, Japan at the 4th World Congress for Microcirculation.

**Davis MJ and Pinkston PM**. Blood flow, but not capillary pressure, is regulated by bat wing microcirculation during decreases in perfusion pressure. Presented at the Microcirculatory Society and FASEB meetings in Washington, DC.

**Falcone JC** (MPHY) Modulation of arteriolar diameter by its paired venule may involve endothelium-derived relaxing factor in both the rat intestine and spinotrapezius muscle. Presented at the First International Symposium on Endothelium-Derived Vasoactive Factors, Philadelphia, Pennsylvania.

**Gawlowski DM and Granger HJ** (MPHY) Dextran-induced leukocyte activation in hamster cheek pouch microcirculation. Presented at the Microcirculatory Society and FASEB meetings in Washington, DC.

**Goodman AH** (MPHY) Recording analog data using the unseen region of a monochrome video signal. Presented at the Microcirculatory Society and FASEB meetings in Washington, DC.

**Granger HJ** (MPHY)

- Local control of tissue perfusion and oxygenation. Presented at the Eastern Virginia Medical School, Norfolk, Virginia.
- Pathophysiology of edema. Presented at Alcon Inc., Fort Worth, Texas.
- Local control of tissue perfusion and oxygenation. Presented at Johns Hopkins Medical Institutions, Baltimore, Maryland.
- Role of endothelium in coronary angiogenesis. Presented at the symposium on Myocardial Angiogenesis, International Heart Research Society, Ann Arbor, Michigan.
- Presented the keynote address at the Symposium on Cochlear Microcirculation at the Symposium sponsored by the Association for Research in Otolaryngology in Clearwater, Florida.

**Hill MA** (MPHY) Cyclooxygenase products do not mediate myogenic vasoconstriction in skeletal muscle. Presented at the First International Symposium on Endothelium-Derived Vasoactive Factors, Philadelphia, Pennsylvania.

**Lewis RE** (MPHY) Chemotactic factors, phagocytes and endothelial barrier functions. Presented at the University of Texas Health Science Center-San Antonio, Texas.

**Meininger CJ, Schelling ME and Granger HJ** (MPHY) The proliferation of cultured aortic endothelial cells is stimulated by hypoxia or adenosine. Presented at the Microcirculatory Society and FASEB meetings in Washington, DC.

**Meininger CJ** (MPHY) Stimulation of endothelial cell proliferation and migration by adenosine or hypoxia. Presented to the American Society for Cell Biology, St. Louis, Missouri.

**Meininger GA** (MPHY)

- The amplifying effect of autoregulation in hypertension. Presented to the Department of Physiology and Biophysics, School of Medicine, University of Louisville, February 1988.
- The splanchnic circulation in chronic arterial hypertension. Presented at the FASEB Summer Research Conference on the Physiology and Pathophysiology of the Splanchnic Circulation, Copper Mountain Resort, Colorado.
- Interaction between myogenic and adrenergic mechanisms of vascular control. Presented at the University of Vermont, Burlington, Vermont.

- Vasoconstrictors and autoregulation determine vascular resistance in hypertension. Presented to the Department of Physiology, Eastern Virginia Medical School.
- Functional characteristics of myogenic vasoregulation. Presented to the Department of Pharmacology, The University of Texas Health Sciences Center at San Antonio, Texas.
- Vasoconstrictors and autoregulation as determinants of vascular resistance in hypertension. Presented to the Department of Physiology, The University of Texas Health Sciences Center at San Antonio, Texas.

**Meininger GA** and Ostrowska EZ (MPHY) Effect of voltage-dependent calcium channel blockade on myogenic vasoconstriction in skeletal muscle arterioles. Presented at the Microcirculatory Society and FASEB meetings in Washington, DC.

**Meininger GA** and Trzeciakowski JP (MPHY) Analysis of the effects of autoregulation and vasoconstrictors on vascular resistance. Presented at the Microcirculatory Society and FASEB meetings in Washington, DC.

**Peterson TV** (MPHY) Neural pathways, blood volume and control of renal function. Presented to the Department of Physiology and Biophysics, SUNY, Buffalo, New York.

**Peterson TV, Benjamin BA, Hurst NL** and Richardson JA (MPHY) Effect of renal denervation on the renal responses to volume expansion in conscious monkeys. Presented at the Microcirculatory Society and FASEB meetings in Washington, DC.

**Schelling ME** (MPHY)

- Characterization of the a- and b-FGF receptor of coronary venular endothelial cells. Presented at the Gordon Conference, Meriden, New Hampshire.
- Characterization of the endothelial cell growth factor (acidic fibroblast growth factor) receptor of coronary venular endothelial cells. Presented at the American Society for Cell Biology, St. Louis, Missouri.

**Schelling ME, Hawker J, Meininger C** and **Granger HJ** (MPHY) In vitro angiogenesis by coronary venular endothelial cells. Presented at the Microcirculatory Society and FASEB meetings in Washington, DC.

**Sikes PV** (MPHY), Unanesthetized bats as an experimental model for physiological and microcirculation studies. Presented at the annual meeting of the AALAS, Texas Branch, in Fort Worth, Texas, May 25, 1988.

**Smith EE** (MPHY)

- presented the keynote address to the annual meeting of the Gregg Division of the American Heart Association, Texas Affiliate in Longview, Texas.
- presented the opening address on importance of funding for cardiovascular research in Texas to a statewide meeting of business and professional people who have agreed to assist the AHA raise funds for heart research in Texas, Austin, Texas.

## **Zawieja DC (MPHY)**

- Mechanisms of lymph formation and propulsion. Presented at the North American Society of Lymphology Symposium, Chicago, Illinois.
- Role of reactive oxygen metabolites on lymphatic function. Presented to the Department of Physiology & Biophysics, School of Medicine, Shreveport, Louisiana.

**Zawieja DC, Benoit JN and Granger HJ (MPHY)** Coordination of lymphatic pumping. A theoretical model. Presented at the Microcirculatory Society and FASEB meetings in Washington, DC.

## **Publications**

**Benjamin BA, Peterson TV, Hurst NL, Maher MA, et al. (MPHY)** Evidence for ANF controlling sodium excretion in the conscious monkey. *Journal of Cellular Biochemistry* 12A: 23, 1988.

**Benjamin BA, Peterson TV, Hurst NL, Maher MA, et al. (MPHY)** Effect of bilateral atrial appendectomy on postprandial sodium excretion in the conscious monkey. *FASEB J* 2: A306, 1988.

**Benjamin BA (MPHY)** Renal response to volume expansion in atrial appendectomized dogs. *American Journal of Physiology*.

**Chilian WM (MPHY)** Transmural differences in sympathetic coronary constriction during exercise in the presence of a stenosis. *Circ. Res.* 62:216-226, 1988.

**Chilian WM (MPHY)**. Distribution of vascular resistance in the coronary microcirculation. *Proceedings of the Second International Symposium on Resistance Arteries, Perinatology Press, 1988.*

**Chilian WM, et al. (MPHY)** Coronary adaptation to myocardial hypertrophy. *Annual Review of Physiology* 49:477-487, 1987.

**Chilian WM et al. (MPHY)** Effects of epinephrine on the coronary microcirculation. *Circulation Research* (Supplement II)51: 47-53, 1987.

**Davis MJ (MPHY)** Determination of volumetric flow rate in capillary tubes using an optical Doppler velocimeter. *Microvasc. Res.* 34:223-230, 1987

**Davis MJ, et al. (MPHY)** Pressure profile in the microcirculation and its control. *Fed. Proc.* 46:266-269, 1987.

**Goodman AH (MPHY)** A simple video caliper for use in video microscopy. *Innovative Techniques in Biological Medicine* 9: 350-356, 1988.

Hester RK, **Meininger GA** et al. (MPHY) Inhibitory effect of D600 in third order arterioles of rat cremaster muscle. In *Resistance Arteries* from the Proceedings of the Second International Symposium on Resistance Arteries, Perinatology Press, 1988.

**Lewis RE and Granger HJ (MPHY)** "Diapedesis and the permeability of venous microvessels. *Microvascular Research* 35: 27-47, 1988.

**Meininger CJ, Schelling ME, and Granger HJ** (MPHY) Adenosine and hypoxia stimulate proliferation and migration of endothelial cells. *American Journal of Physiology* 255 (Heart Circ. Physiol. 26): H554-H562, 1988.

**Meininger GA** and Trzeciakowski JP (MPHY) Amplification of vasoconstrictor action by pressure-dependent autoregulation. In *Resistance Arteries*, Proceedings of the Second International Symposium on Resistance Arteries, Perinatology Press, 1988.

**Meininger GA, Benoit JN, Ostrowska EZ, and Muckelroy SK** (MPHY) Splanchnic circulatory changes during the development of renal hypertension. *American Journal of Physiology* 253 (Gastrointest. Liver Physiol. 16): G146-G154, 1987.

**Meininger GA** and Trzeciakowski JP (MPHY) Vasoconstriction is amplified by autoregulation during vasoconstrictor-induced hypertension. *American Journal of Physiology* 254 (Heart Circ. Physiol. 23), 1988.

**Meininger GA, Mack CA, Fehr KL, et al** (MPHY) Myogenic vasoregulation overrides local metabolic control in resting rat skeletal muscle. *Circulation Research*, 60:861-870, 1987.

**Peterson TV, Benjamin BA, Hurst NL, Maher MA et al.** (MPHY) Renal effects of ANF infusion in conscious monkeys. *Journal of Cellular Biochemistry* 12A: 24, 1988

**Peterson TV, Benjamin BA, Hurst NL et al.** (MPHY) Renal nerves and natriuretic effects of ANF in the conscious nonhuman primate. *FASEB J* 2: A527, 1988.

**Peterson TV et al.** (MPHY) Renal nerves and the renal responses to head-up tilt in dogs. *American Journal of Physiology* 252:R979-R986, 1987.

**Schelling ME, Meininger CJ, Hawker JR Jr. and Granger HJ** (MPHY) Venular endothelial cells from bovine heart. *American Journal of Physiology* 254 (Heart Circ. Physiol. 23): H1211-H1217, 1988.

**Schelling ME, Hawker JR Jr. and Granger HJ** (MPHY) Characterization of the endothelial cell growth factor (acidic fibroblast growth factor) receptor of coronary venular endothelial cells. *J. Cell Biol.* 105:110a.

**Zawieja DC** and Barber BJ (MPHY) Lymph protein concentration in initial and collecting lymphatics of the rat. *Am. J. Physiol.* 252:G602-G604, 1987.

**Zawieja DC et al.** (MPHY). Construction of an optical bench microscope for intravital studies. *Microvascular Research* 33:433-436, 1987.

## Professional Activities

**Davis MJ** (MPHY) chaired the symposium on Regulation in the Microcirculation, 4th World Congress for Microcirculation, Tokyo, Japan.

**Chilian WM (MPHY)**

- attended the International Conference on Bioengineering, San Antonio, Texas.
- consulted with personnel at the University of Texas Health Science Center-Dallas on ISCOR grant, Dallas, Texas.
- participated in a collaborative study with the University of Iowa's Department of Anatomy on the role of sympathetic nerves in vascular hypertrophy during hypertension, Iowa City, Iowa.

**Granger HJ (MPHY)**

- attended a meeting of the Program Advisory Committee of the American Physiological Society, Bethesda, Maryland.
- served on the Program Advisory Committee of the American Physiological Society and attended the joint American Physiological Society/ASPET meeting, Montreal, Canada.
- served on the National Institutes of Health site visit team to evaluate a Program Project Grant at the University of Arizona Medical Center-Tucson. Arizona.
- served as a consultant for the National Institutes of Health for program projects, visited the Medical College of Ohio and the Medical College of Wisconsin.

**Meininger CJ (MPHY)** attended the Fourth International Congress of Cell Biology, Montreal, Canada.

**Meininger GA (MPHY)** reviewed cardiovascular research proposals for the American Heart Association, Texas Affiliate, Austin, Texas.

**Peterson TV (MPHY)**

- attended the Joseph P. Gilmore Cardiovascular Symposium, Omaha, Nebraska.
- consulted with personnel of the University of South Florida College of Medicine on assay techniques for measuring plasma hormone levels, Tampa, Florida.
- reviewed cardiovascular research proposals for the American Heart Association, Texas Affiliate, Austin, Texas.

**Smith EE (MPHY)**

- participated in an American Heart Association meeting to discuss implementation of heart curriculum in Texas schools, Austin, Texas.
- represented the College of Medicine in meetings of the American Heart Association Research Allocations and Advisory Committee, Austin, Texas.