

DEPARTMENT OF MEDICAL PHYSIOLOGY

FACULTY/STAFF ACTIVITIES

2001

Awards and Appointments

Davis MJ (MPHY) received a College of Medicine Excellence in Research Award at the Faculty Convocation 2001 held on October 22 for his work on mechanotransduction by vascular cells.

Hawker JR Jr (MPHY) received an APS Experimental Biology 2001 Travel Award.

Hayes HM (MPHY) was awarded a \$1,000 travel award to attend the IUPS meeting, Christchurch, New Zealand, August 26-31, 2001.

Kuo L (MPHY) was promoted to Professor.

Meininger CJ (MPHY) was elected Secretary of the Microcirculatory Society for 2001-2003.

Meininger GA (MPHY) was appointed Associate Department Head.

Meininger GA (MPHY) was appointed Director of the Vascular Biology Division of the Cardiovascular Research Institute.

Muthuchamy M (MPHY) Selected as a review panel member for Scholarly & Creative Activities Review Committee (TAMU),

Yuan SY (MPHY) was elected as a Fellow of the American Physiology Society Cardiovascular Section.

Yuan SY (MPHY) was appointed as a regular member of the National Institutes of Health CVB section.

Grants

Alpini G (MPHY) received a \$478,200 Department of Veterans Affairs grant entitled "Mechanisms of Cholangiocyte Proliferative and Secretory Heterogeneity" for the period 03/01/01-02/28/05.

Delp MD, Wilson E and Zawieja DC (MPHY) received an \$884,884 NSBRI - Baylor College of Medicine grant entitled "Circulatory Remodeling with Simulated Microgravity" for the period 02/01/01-01/31/04.

Delp JM and Meininger C(MPHY) received a \$410,440 National Institutes of Health - National Institute on Aging grant entitled "Aging and Endothelial Function of Skeletal Muscle Arterioles" for the period 04/01/01-03/31/04.

Foley P and Meininger CJ (MPHY) received a \$51,350 Scott & White Memorial Hospital grant entitled "Blocking Mast Cell Receptors to Slow Cancer Progression" for the period 07/01/01-12/30/02.

Granger HJ and **Childs EW** (MPHY) received a \$112,925 National Institutes of Health Minority Supplement grant entitled “Regulation of Coronary Angiogenesis” for the period 07/01/01-12-30-02.

Granger HJ and **Childs EW** (MPHY) received a \$54,154 Scott & White Memorial Hospital grant for the period 07/01/01-12/30/02.

Herrera L and **Forough R** (MPHY) received a \$150,000 Scott and White Memorial Hospital grant entitled “The Role of Matrix Metalloproteinases in B-precursor ALL” for the period 03/01/01-02/28/04.s

Humphrey JD, **Wilson E** and Rajagopal KR (MPHY) received a \$302,033 (direct cost) National Science Foundation grant entitled “Quantification of Flow-Induced Vascular Adaptation Via Organ Culture System” for the period 01/01/01-12/31/03.

Publications

Alpini G, Glaser S and LeSage G (MPHY) Bile acids stimulate proliferative and secretory events in rat cholangiocytes. In: *Biology of Bile Acids in Health and Disease*. van Berge Henegouwen GP, Kepple D, Leuschner U, Paumgartner G, Stiehl A. XVI International Bile Acide meeting. Falk Symposium 120. Kluwer Academic Publishers, Dordrecht/Boston/London. 137-151.

Alpini G, Ueno Y, Glaser SS, **Marzioni M**, Phinizy JL, Francis H, LeSage G. Bile acid feeding increased proliferative activity and apical bile acid transporter expression in both small and large rat cholangiocytes. *Hepatology* 35(5): 868-76, 2001.

Alvaro D, **Alpini G**, Onori P, Perego L, Svegliati Baroni L, Franchitto A, Baiocchi L, Glaser S, LeSage G, Folli F, Gaudio E. (MPHY) Estrogens stimulate proliferation of the intrahepatic biliary epithelium in rats. *Gastroenterology* 119: 1681-1691, 2000.

Davis MJ (MPHY) Basic principles of synaptic physiology illustrated by a computer model (*Am J Physiol, Advances in Education*) – online version

Davis MJ and Gore RW (MPHY) Determinants of cardiac function: computer simulation of a dynamic cardiac pump for use in medical student instruction (*Am J Physiol: Advances in Education*) – online version

Davis MJ, **Wu X**, **Nurkiewicz T**, **Kawasaki J**, Davis GE, **Meininger GA**, Hill MA. (MPHY) Integrins and mechanotransduction of the vascular myogenic response. *Am J Physiol: Heart and Circ Physiol* 280:H1427-H1433, 2001.

Gashev AA and **Zawieja DC** (MPHY) Physiology of human lymphatic contractility: a historical perspective. *Lymphology* 34(3): 124-134 (review), 2001.

Griffin KL, Woodman CR, Price EM, Laughlin MH, and **Parker JL** (MPHY) Endothelium-mediated relaxation of porcine collateral-dependent arterioles is improved by exercise training. *Circulation* 1393-1398, 2001.

Evans C, Pena J, Phillips R, **Muthuchamy M**, Wieczorek D, Solaro J, Wolska B. (MPHY) Altered hemodynamics and response to β -adrenergic stimulation in transgenic mice harboring a mutant tropomyosin (Asp175Asn) linked to hypertrophic cardiomyopathy. *Am J Physiol.: Heart and Circ Physiol* 279: H2414-H2423, 2000

Hein TW, Platts SH, Waitkus-Edwards KR, Kuo L, Mousa SA and **Meininger GA**. Integrin-binding peptides containing RGD produce coronary arteriolar dilation via cyclooxygenase activation. *Am J Physiol: Heart Circ Physiol* 281: H2378-H2384, 2001.

Hein T, Wang W, Zoghi B, Muthuchamy M and **Kuo L** (MPHY) Functional and molecular characterization of receptor subtypes mediating coronary microvascular dilation to adenosine. *J Mol And Cell Cardiol* 33: 271-282, 2001

Hill MA, Zou H, Potocnik SJ, **Meininger GA, Davis MJ** (MPHY) Arteriolar smooth muscle mechanotransduction: Ca^{2+} signaling pathways underlying myogenic reactivity. *J Appl Physiol* 91: 973-983, 2001.

Huang K-T, Han TH, Hyduke DR, Vaughn MW, Van Herle H, **Hein TW, Zhang C, Kuo L** and Liao JC (MPHY) Modulation of nitric oxide bioavailability by erythrocytes. *Proc Natl Acad Sci USA* 98: 11771-11776, 2001.

Kanno N, Glaser S, **Chowdhury U**, Phinizy JL, Baiocchi L, Francis H, LeSage G and **Alpini G**. (MPHY) Gastrin inhibition of cholangiocarcinoma growth is coupled with increased apoptosis by activation of Ca^{2+} -dependent protein kinase C- α . *J of Hepatology* 34: 284-291, 2001.

Kanno N, LeSage G, Glaser S and **Alpini G** (MPHY) Secretin regulation of cholangiocyte bicarbonate secretion. *Am J Physiol* 281: G612-G625, 2001.

Kuo L and **Hein TW** (MPHY) Functional and molecular evidence of adenosine A_2A receptor in coronary arteriolar dilation to adenosine. *Drug Develop Res* 52: 350-356, 2001.

LeSage G, Glaser S, Ueno Y, Alvaro D, Baiocchi L, **Kanno N**, Phinizy JL, Francis H and **Alpini G** (MPHY). Regression of cholangiocyte proliferation after cessation of ANIT feeding is associated with increased apoptosis. *Am J Physiol* 281: G182-G190, 2001.

LeSage G, Glaser S and **Alpini G** (MPHY). Regulation of cholangiocyte proliferation. *Liver* 21: 73-80, 2001.

Marinos RS, Zhang W, Wu G, **Kelly K** and **Meininger CJ** (MPHY) Tetrahydrobiopterin levels regulate endothelial cell proliferation. *Am J Physiol Heart Circ Physiol* 281(2): H482-489, 2001.

Marzoni M, Glaser S, **Alpini G**, LeSage G. Role of apoptosis in the development of primary biliary cirrhosis. *Dig Liver Dis* 33: 531-533, 2001.

McGill JM, Yen MS, Cummings OW, **Alpini G**, LeSage G, Pollok KE, Miller B, Engle SK and Stansfield AP. (MPHY) Interleukin-5 inhibition of biliary cell chloride currents and bile flow. *Am J of Physiol: Gastrointestinal Physiol* 280(4): G738-G745, 2001.

Peterson TV, Emmeluth C and Bie P (MPHY) Renal effects of nitric oxide synthase inhibition in conscious water loaded dogs. *Am J Physiol: Reg, Integr and Comp Physiol* 281: R584-R590, 2001.

Rivers RJ, **Hein TW**, **Zhang C** and **Kuo L** (MPHY) Activation of barium-sensitive inward rectifier potassium channels mediates remote dilation of coronary arterioles. *Circ* 104: 1749-1753, 2001.

Sadatmansoori S, MacDougall J, Khademi S, **Cooke LS**, Guarino L, Meyer EF, **Forough R**. Construction, expression, and characterization of a baculovirally expressed catalytic domain of human matrix metalloproteinase-9. *Protein Expr Purif* 23(3): 447-52, 2001.

Tinsley JH, **Zawieja DC**, **Wu MH**, **Ustinova EE**, **Xu W** and **Yuan SY** (MPHY) Protein transfection of intact microvessels specifically modulates vasoreactivity and permeability. *J Vasc Res* 38:444-452, 2001.

Tong CW, Kolomenskii A, Lioubimov VA, Schuessler HA, **Trache A**, **Granger HJ**, **Muthuchamy M**. (MPHY) Measurements of crossbridge attachment/detachment process within intact sarcomeres by surface plasmon resonance. *Biochemistry* 40: 13915-13924, 2001.

Vaughn MW, **Huang K-T**, **Kuo L** and Liao JC (MPHY) Erythrocyte consumption of nitric oxide: competition experiment and model analysis. *Nitric Oxide* 5:18-31, 2001.

Wu G, Haynes TE, Li H, **Kelly KA** and **Meininger CJ**. (MPHY) Presence of glutamine: fructose-6-phosphate transaminase for glucosamine-6-phosphate synthesis in endothelial cells: effects of hyperglycemia and glutamine. *Diabetologia*, Vol. 44: 196-202, 2001.

Wu G, Haynes TE, Li H, Yan W and **Meininger CJ**. (MPHY) Glutamine metabolism to glucosamine is necessary for glutamine inhibition of endothelial nitric oxide synthesis. *Biochem J* 353: 245-252, 2001.

Wu X, Davis GE, **Meininger GA**, **Wilson E** and **Davis MJ** (MPHY) Regulation of the L-type calcium channel by $\alpha_5\beta_1$ integrin requires signaling between focal adhesion proteins. *J Biol Chem* 276(32): 30285-30292, 2001.

Wu X, and **Davis MJ**. (MPHY) Characterization of stretch-activated, cation current in pig coronary smooth muscle cells. *Am J Physiol: Heart and Circ Physiol* 280:H1751-H1761, 2001.

Yuan SY. (MPHY) Signal transduction pathways in enhanced microvascular permeability. *Microcirculation* 7: 395-403, 2000.

Zhang C, **Hein TW**, **Wang W**, **Chang C-I** and **Kuo L** (MPHY) Constitutive expression of arginase in microvascular endothelial cells counteracts nitric oxide-mediated vasodilatory function. *FASEB J* 15: 1264-1266, 2001.

Zheng W, Seftor EA, **Meininger CJ**, Hendrix MJC and Tomanek RJ. Mechanisms of coronary angiogenesis in response to stretch: role of VEGF and TGF- β . *Am J of Physiol: Heart and Circ Physiol* 280: H909-H917, 2001.

Presentations

Alpini G, Glaser S, Phinizy JL, **Kanno N**, Francis H, **Ludvik M** and LeSage G (MPHY)

- Regulation of cholangiocyte apical bile acid transporter (ABAT) activity by biliary bile acids: different potential compensatory changes for intrahepatic and extrahepatic cholestasis. Presented at the American Gastroenterological Association, Atlanta, Georgia, May 2001. (*Gastroenterology* 200: A6, 2001.)
- Bile acid stimulation of small bile duct proliferation requires de novo expression of the apical bile acid transporter (ABAT). Presented at the American Gastroenterological Association, Atlanta, Georgia, May 2001. (*Gastroenterology* 200: A4, 2001.)

Alpini G, Tadlock L, Glaser S, LeSage G, Patel T (MPHY). Increased susceptibility of rat cholangiocytes to tumor necrosis factor (TNF α) cytotoxicity following bile duct ligation. Presented at the American Gastroenterological Association, Atlanta, Georgia, May 2001. (*Gastroenterology* 200: A1863, 2001.)

Alpini G, Glaser S, Phinizy J, Francis H, **Marzioni M**, LeSage G (MPHY). Activation of phosphatidylinositol-3 kinase (PI3K) and extracellular signal-regulated kinase (ERK) are necessary for cholangiocyte migration during experimental bile duct wound repair. Presented at the American Association for the Studies of Liver Diseases, Dallas, Texas, November 10-13, 2001.

Alvaro D, **Alpini G**, Onori P, Glaser S, Baroni-Svegliati G, Folli F, Franchitto A, Attili A, Gaudio E. Estrogens stimulate cholangiocyte proliferation through the activation of the ERK1/2 system and the adaptor protein Sch. Presented at the American Association for the Studies of Liver Diseases, Dallas, Texas, November 10-13, 2001.

Alvaro D, **Alpini G**, Onori P, Glaser S, LeSage G, Franchitto A, Attili A, Gaudio E. Ovariectomy impairs cholangiocyte proliferative and secretory capacity of cholangiocytes from bile duct ligated rats. New evidence for the role of estrogens in modulating the functional proliferative capacity of the intrahepatic biliary epithelium. Presented at the American Association for the Studies of Liver Diseases, Dallas, Texas, November 10-13, 2001.

Davis, M.J. (MPHY)

- Regulation of L-type calcium channels by integrins.
 - Presented at UNTHSC, Forth Worth, Texas, April 12-14, 2001.
 - Presented to the Department of Kinesiology, Texas A&M University, October 26, 2001.
 - Presented at the University of Florence, Florence, Italy, October 28-November 13, 2001.
 - Presented at the University of Halle, Halle, Germany, October 28-November 13, 2001.
 - Presented to the Department of Molecular Physiology, Yale University, New Haven Connecticut, November 29, 2001.

- Regulation of VSM calcium channels by integrins. Presented to the Smooth Muscle Research Group, University of Calgary, Calgary, Alberta, Canada, April 25-29, 2001.
- Computer- and Web-based Physiology Instruction. Presented to the College of Medicine, University of Calgary, Calgary, Alberta, Canada, April 25-29, 2001.
- Signaling mechanisms in the vascular myogenic response. Presented to the John B. Pierce Labs, Yale University, New Haven Connecticut, November 26, 2001.

Fogarty JA, Muller-Delp JM, Delp MD, **Mattox ML**, Laughlin MH and **Parker JL** (MPHY) VEGF-mediated vasorelaxation of porcine collateral-dependent arterioles is enhanced by exercise training: Role of underlying mediators. Presented at Experimental Biology 2001, Orlando, Florida, March 29-April 10, 2001.

Forough R, Lindner L, Partridge C, **Jones B**, **Cooke LS**, **Granger HJ** and Clark G (MPHY) P90, a possible new prognostic biomarker for invasive breast carcinoma. Presented at Experimental Biology 2001, Orlando, Florida, March 29-April 4, 2001.s

Gashev AA and **DC Zawieja** (MPHY)

- The roles of rapid changes in lymph flow direction and NO release in flow-mediated lymphatic responses. Presented at Experimental Biology 2001, Orlando, Florida, March 29-April 3, 2001.
- Comparison of the active lymph pumps of the rat thoracic duct and mesenteric lymphatics. Poster presented at the Proceedings of the 7th World Congress for Microcirculation, Sydney, Australia, August 18-22, 2001.

Gui P, **Wilson E**, Zamponi GW, Davis GE and **Davis MJ** (MPHY) Modulation of L-type calcium channels by $\alpha_5\beta_1$ integrin: test for maintaining regulation in a heterologous expression system. Presented at Experimental Biology 2001, Orlando, Florida, March 30-April 4, 2001.

Granger HJ. (MPHY) Microcirculation. Presented at the Scientific Conference on Therapeutic Angiogenesis and Myocardial Laser Revascularization, Santa Fe, New Mexico, January 23-28, 2001.

Hawker JR, **Jarvis R**, **Erichsen D**, Keschman E, **Nardone H**, **Wood K** (MPHY) The Type I receptors ALK-1 and ALK-5 play a role in TGF β -mediated signaling in angiogenesis. Presented at Experimental Biology 2001, Orlando, Florida, March 30- April 3, 2001.

Hayes HM, **Wilson E** and **Zawieja DC** (MPHY)

- Detection of integrins on rat mesenteric lymphatic endothelial cells. Presented at Experimental Biology 2001, Orlando, Florida, March 29-April 3, 2001.
- Detection of angiopoietins/receptors in rat lymphatic endothelial cells and vessels. Presented at the IUPS Congress, Christchurch, New Zealand, August 26-31, 2001.

Hein TW, **Zhang C**, **Wang W** and **Kuo L** (MPHY) Upregulation of arginase in coronary microcirculation by ischemia/reperfusion inhibits nitric oxide-mediated vasodilation. Presented at Experimental Biology 2001, Orlando, Florida, March 29-April 2, 2001.

Huang X. (MPHY)

- The roles of cardiomyofibril proteins in cardiac function and heart development. Presented to the Department of Physiology, Meharry Medical College, Nashville, Tennessee, March 20-21, 2001.
- Role of contractile proteins in cardiac function. Presented at the University of Oklahoma, Oklahoma City, Oklahoma, April 18-20, 2001.
- Myofibril protein gene regulation during heart development. Presented at Florida Atlantic University, Boca Raton, Florida, April 25-30, 2001.
- cTn2 gene knockout: A mouse model for functional evaluation of myofibril protein and regulation of the gene expression. Presented at the University of California, Davis Medical School, Davis, California, June 7-11, 2001.
- Troponin 2 and tropomyosin. Presented to the Department of Physiology, University of Wisconsin, Madison, Wisconsin, June 26-July 1, 2001.

Invernizzi P, Maggioni M, Alvaro D, **Alpini G**, Marucci L, LeSage G, Benedetti A, Pastorek J, Podda M (MPHY). Expression of the tumor-associated carbonic anhydrase IX, CA9, in primary liver and biliary neoplasms. Presented at the American Association for the Studies of Liver Diseases, Dallas, Texas, November 10-13, 2001.

Jones SA, Patterson J, Williams S, **Wilson E** and Ramos KS (MPHY) Growth, matrix and differential MAP kinase activation in allylamine injured vascular smooth muscle cells. Presented at Experimental Biology 2001, Orlando, Florida, March 30-April 4, 2001.

Kanno N, LeSage G, Glaser S, Phinizy JL, Francis H, **Ludvik M** and **Alpini G**(MPHY) The growth of two human cholangiocarcinoma cell lines is inhibited by alpha-2 adrenergic agonists by a cAMP-dependent mechanism through the inhibition of Raf-1 and MAPK systems. Presented at the American Gastroenterological Association, Atlanta, Georgia, May 2001. (*Gastroenterology* 200: A490, 2001.)

Kanno N, Alpini G, Phinizy JL, Glaser S, **Marzioni M**, Francis H, LeSage G. Tauroursodeoxycholic acid inhibits cholangiocarcinoma growth via Ca²⁺-, protein kinase C (PKC)-, and MAPK-dependent pathways. Presented at the American Association for the Studies of Liver Diseases, Dallas, Texas, November 2001.

Kawasaki J, Nurkiewicz TR and **Davis MJ** (MPHY) Regulation of endothelial cell calcium current by $\alpha_v\beta_3$ integrin. Presented at Experimental Biology 2000, Orlando, Florida, March 30-April 7, 2001.

Kuo L. (MPHY)

- Coronary microvascular physiology and pathophysiology – molecules to disease. Presented at the Japanese Society for Microcirculation meeting in Kurashiki, Japan, February 10-19, 2001.
- Regulation of coronary microcirculation: from physiology to pathophysiology. Presented at Hirosaki University School of Medicine, Hirosaki, Japan, February 10-19, 2001.

- Impaired adenosine-induced dilation in coronary arteries from transgenic mouse heart expressing a familiar hypertrophic cardiomyopathy mutation. Presented at Experimental Biology 2001, Orlando, Florida, March 30-April 4, 2001.

Lemanski LF (MPHY)

- A novel RNA which binds to proteins promotes myofibrillogenesis in axolotl hearts. Presented at Experimental Biology 2001, Orlando, Florida, March 31-April 8, 2001.
- Role of a novel RNA in myofibrillogenesis and heart development. Presented at the Weinstein Cardiovascular Conference, Dallas, Texas, May 17-20, 2001.

LeSage G, Glaser S, Francis H, **Ludvik M**, Phinizy JL, **Kanno N** and **Alpini G** (MPHY). Alpha-naphthylisothiocyanate-induced cholangiocyte apoptosis is dependent on increased reactive oxygen species (ROS). Presented at the American Gastroenterological Association, Atlanta, Georgia, May 2001. (*Gastroenterology* 200: A1828, 2001.)

LeSage G, Glaser S, Alvaro D, **Marzioni M**, Ueno Y, Francis H and **Alpini G** (MPHY). Alpha-1 (but not beta-1) adrenergic agonists potentiate secretin-stimulated ductal secretion in bile duct ligated (BDL) rats through cross-talk between Ca²⁺-dependent PKC and adenylyl cyclase pathways. Presented at the American Association for the Studies of Liver Diseases, Dallas, Texas, November 10-13, 2001.

LeSage G, Glaser S, **Marzioni M**, Marucci L, Benedetti A, Alvaro D and **Alpini G** (MPHY). Insulin inhibits secretin-stimulated ductal secretion in bile duct ligated (BDL) rats through activation of Ca²⁺-dependent protein kinase C (PKC) which leads to downregulation of protein kinase A (PKA). Presented at the American Association for the Studies of Liver Diseases, Dallas, Texas, November 10-13, 2001.

Martinez-Lemus LA, Hill MA, Bolz SS, Pohl U and **Meininger GA** (MPHY) Changes in vascular smooth muscle cell shape suggest rapid remodeling events occur in the arteriolar wall during vasoconstriction. Presented at Experimental Biology 2001, Orlando, Florida, March 29-April 4, 2001.

Marzioni M, **Alpini G**, Glaser S, Ueno Y, Marucci L, Benedetti A, Francis H, Phinizy J and LeSage G (MPHY). Maintenance of ABAT levels and bile acid (BA) transport activity by taurocholic acid (TC) feeding prevents the cholangiocyte apoptosis and loss of cholangiocyte proliferation and secretion due to vagotomy. Presented at the American Association for the Studies of Liver Diseases, Dallas, Texas, November 10-13, 2001.

Meininger C, Hatakeyama K, Haynes T, **Kelly K** and Wu G (MPHY). Tetrahydrobiopterin deficiency in endothelial cells of diabetic rats. Presented at the 12th International Symposium on the Chemistry and Biology of Pteridines and Folates, Session on Tetrahydrobiopterin and Endothelial Function, National Institutes of Health, Bethesda, Maryland, June 17-22, 2001. *Pteridines* 12: 62, 2001.

Meininger CJ (MPHY)

- Enhanced activity of glutamine: fructose-6-phosphate transaminase in insulin-sensitive tissues of diabetic rats? Presented at the 7th World Congress for Microcirculation, Symposium on Insulin Action in Skeletal Muscle and Skin Microcirculation, Sydney, Australia.

- Tetrahydrobiopterin deficiency and endothelial cell dysfunction in diabetes? Presented at the “Diabetic Complications: Mechanisms Underlying Neuronal and Vascular Changes” Satellite Meeting (in conjunction with the 34th IUPS Meeting), Melbourne, Australia, September 2001.
- Mast cell modulation of tumor angiogenesis: role of steel factor. Presented at the 6th World Congress on Advances in Oncology and the 4th International Symposium on Molecular Medicine, Hersonissos Crete, Greece, October 16-25, 2001.

Meininger GA. (MPHY)

- The extracellular matrix integrin axis as a new paradigm for vascular control. Presented to the Department of Physiology and Biophysics, SUNY Health Sciences Center, Stony Brook, New York, February 29-March 2, 2001.
- Role of integrins in vascular control: A potentially creepy subject. Presented to the Department of Internal Medicine, Michigan State University, East Lansing, Michigan, March 12, 2001.
- $\alpha_4\beta_1$ integrin-mediated vasoconstriction of isolated arterioles occurs through activation of L-type calcium channels. Presented at the 7th World Congress for Microcirculation meeting, Sydney, Australia, August 17-24, 2001.
- Regulation of the vasculature by extracellular matrix and receptors for cell adhesion. Presented to the Dept. of Molecular and Cellular Physiology, Louisiana State University, Shreveport, Louisiana, October 28-30, 2001.

Naftanel MA (MPHY) Pathophysiology of endotoxin: Microvascular dysfunction, and the roles of VEGF and nitric oxide (NO). Presented at the Shock Society meeting, Marco Island, Florida, June 8-13, 2001.

Neiger J, Sheng J, Patterson J and Wilson E (MPHY) Regulation of endothelial cell integrin expression by angiogenic growth factors. Presented at Experimental Biology 2001, Orlando, Florida, March 30-April 4, 2001.

Nurkiewicz TR, Kawasaki J and Davis MJ (MPHY) Current activation and hyperpolarization in endothelial cells responding to quantified changes in shear stress. Presented at Experimental Biology 2001, Orlando, Florida, March 30-April 2, 2001.

Partridge CR, **Wilson E, Meininger GA**, Williams ES and Ramos KS (MPHY). Altered expression of osteopontin, alpha 1 integrin subunit, and alpha-smooth muscle actin in vascular tissue in response to oxidative injury. Presented at the 41st Annual Meeting of the Society for Toxicology, September 2001.

Thengchaisri N, Hein TW, Zhang C, Wang W and Kuo L (MPHY) Upregulation of endothelial arginase by oxidative stress contributes to the impaired NO-mediated coronary arteriolar dilation. Presented at the Proceeding for 7th World Congress for Microcirculation, 3-52, Sydney, Australia, August 18-22, 2001.

Tinsley JH (MPHY) The vascular endothelial cell: role in inflammation and angiogenesis. Invited presentation at the University of Florence, Florence, Italy, July 16, 2001.

Tong C, Gaffin R, Zawieja D and Muthuchamy M (MPHY) Role of tropomyosin binding protein C in force frequency relationship of cardiac muscle. Presented at Experimental Biology 2001, Orlando, Florida, March 30-April 4, 2001.

Wu MH, Yuan SY, Ustinova EE and Granger HJ (MPHY) The MAP kinase cascade is involved in the signal transduction of histamine-induced microvascular hyperpermeability. Presented at Experimental Biology 2001, Orlando, Florida, March 30-April 4, 2001.

Wu X, Davis GE, Meininger GA, Wilson E and Davis MJ (MPHY) Role of the cytoskeleton and focal adhesion proteins in regulation of vascular smooth muscle L-type by $\alpha_5\beta_1$ integrin. Presented at Experimental Biology 2001, Orlando, Florida, March 30-April 4, 2001.

Yuan SY (MPHY)

- Endothelial signaling of microvascular barrier dysfunction. Presented to the Biomedical Engineering Society, Durham, North Carolina, October 4-6, 2001.
- Endothelial structural proteins and barrier function. Presented at the University of Medicine and Dentistry at New Jersey, Newark, New Jersey, October 30-31, 2001.
- Advances in the study of vascular endothelial pathobiology. Presented at the First Military Medical University, Canton, China, November 21, 2001
- Molecular and cellular mechanisms of microvascular barrier dysfunction. University of Alabama at Birmingham, Birmingham, Alabama, December 13, 2001.

Yuan SY, Ustinova EE, Wu MH, Tinsley JH, Xu W and Korompai FL (MPHY) Upregulation of PKC mRNA expression and activity mediates microvascular barrier dysfunction in diabetic hearts. Presented at Experimental Biology 2001, Orlando, Florida, March 30-April 4, 2001.

Zawieja, DC. (MPHY)

- The molecular basis of lymphatic contractions. Presented at the Biomedical Engineering Society 2001 meeting, Durham, North Carolina, October 4-6, 2001.
- Lymphangiogenesis and lymphatic function. Presented at Regeneron Pharmaceuticals, Tarrytown, New York, December 5, 2001.

Zawieja DC, Gashev AA, Muthuchamy M (MPHY) The molecular basis of lymphatic contractions. Presented at the Proceedings of the 7th World Congress for Microcirculation, Sydney, Australia, August 18-22, 2001.

Zhang C (MPHY) A novel RNA is related to contractile protein synthesis and cardiac myofibrillogenesis in Mexican axolotls. Presented at the 2nd International Conference on Proteins that Bind RNA. Austin, Texas, March 4-8, 2001.

Zhang C, Hein TW and Kuo L (MPHY) Angiotensin II AT1 receptor mediates potentiation of coronary arteriolar constriction to phenylephrine. Presented at Experimental Biology 2001, Orlando, Florida, March 29-April 4, 2001.

Professional Activities

Alpini G (MPHY) was invited to serve on the editorial board of the *Journal of Hepatology* for another two years, 2002-2004.

Alpini G (MPHY) organized and co-directed (with Dr. LaRusso and Dr. McGill) the American Association for the Studies of Liver Diseases (AASLD) single topic on “biliary epithelia”. Airlie, Virginia, June 7-10, 2001.

Davis MJ (MPHY)

- reviewed grant proposals at the NIH Study Section “Experimental Cardiovascular Sciences” in Washington, DC, March 4-6, 2001.
- attended an NIH Study Section meeting. Washington, D.C., June 18-20, 2001.
- traveled to the NIH Study Section-Experimental Cardiovascular Sciences to review NIH grant proposals, Washington, DC, October 21-23, 2001.

Granger HJ (MPHY) reviewed grants as a review committee member for the Canada Foundation for Innovation, Calgary, Alberta, Canada, October 14-17, 2001.

Kuo L (MPHY) reviewed a grant for Tobacco Related Cardiovascular Disease Research, University of California System, San Francisco, California, April 27-30, 2001.

Meininger CJ (MPHY)

- reviewed grant proposals for the Cellular Biotechnology and Tissue Engineering Panel of the National Aeronautics and Space Administration’s Microgravity Program. Washington, DC, February 7-10, 2001.
- reviewed grant proposals for the American Heart Association Western States Affiliate. Salt Lake City, Utah, March 22-23, 2001.

Mendoza T (MPHY) attended NIH Seminar on the Fundamentals of NIH Grants. Houston, Texas, March 14-16, 2001.

Muthuchamy M (MPHY) attended the American Heart Association – Western Affiliates grant review meeting, Salt Lake City, Utah, March 22-23, 2001.

Peterson TV (MPHY)

- attended the annual meeting of the American Physiological Society Council and Committee Chairs in his role as chair of the Awards Committee, July 12-14 in Bethesda, MD.
- chaired a meeting of the American Physiological Society Awards Committee at Experimental Biology 2001, Orlando, Florida, March 31-April 3, 2001.
- attended the FASEB Conference on "Renal Microcirculatory Hemodynamics: Molecular, Cellular, Physiological, Clinical and Integrative Mechanisms" June 16-21 in Saxtons River, VT.

Wilson E (MPHY) participated in the American Heart Association – Western Consortium 4A review panel, Salt Lake City, Utah, March 22-23, 2001.

Wilson E (MPHY) attended an American Heart Association – Texas Affiliates RAAC meeting, Austin, Texas, April 20, 2001.

Yuan SY (MPHY)

- reviewed a grant proposal for VA VISN 17 via videoconference at the Temple VA, Temple, Texas, February 7, 2001.
- attended the NIH CVB Study Section meeting in Washington, DC, February 25-28, 2001.
- attended an NIH Study Section meeting and review of grants. Washington, D.C., June 24-27, 2001.
- traveled to the NIH Study Section-CVB to review NIH grant proposals, Washington, DC, October 28-30, 2001.

Zawieja DC (MPHY)

- attended a meeting of the officers of the Lymphatic Research Foundation to develop NIH grant to support LRF Think Tank on lymphatic research, New York, New York, January 13-14, 2001.
- attended meeting at the Lymphatic Research Foundation Scientific Medical Advisory Board in Miami, Florida, February 16-18, 2001.
- attended the American Heart Association – Western Affiliates grant reviews meeting, Salt Lake City, Utah, March 22-23, 2001.
- attended the meeting of the Scientific/Medical Advisory Board of the Lymphatic Research Foundation to plan scientific meeting at National Institutes of Health, New York, New York, October 18-21, 2001.