Xin Wu, M.D.

CURRICULUM VITAE 2004

ADDRESS

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EDUCATION

1980-1985	**M.D.**, Program of Medicine, Nantong Medical College, China
1990-1993	**M.S.**, Program of Cardiovascular Physiology, Suzhou Medical College, China

EXPERIENCE

1985-1990	Research & Teaching Assistant, Dept. of Physiology, Nantong Medical College, China
1990-1993	Research (Cardiovascular Physiology) & Teaching Assistant, Dept. of Physiology, Suzhou Medical College, China
1993-1995	Research (Cardiovascular Physiology) & Teaching Instructor, Dept. of Physiology, Nantong Medical College, China
1995-2000	Postdoctoral Research Associate (Cardiovascular Physiology), Dept. of Medical Physiology, Texas A&M University Health Science Center, College Station, TX
2000-2003	Assistant Research Scientist, Dept. of Medical Physiology, Texas A&M University Health Science Center, College Station, TX
2003-present	Assistant Research Professor, Dept. of Medical Physiology, Texas A&M University Health Science Center, College Station, TX

HONORS

1999 Travel award based on outstanding research from the Experimental Biology '99 meeting funded by the National Heart, Lung, and Blood Institute, National Institutes of Health, USA

Nominee of Young Investigator, in Experimental Biology '99 meeting, North American Vascular Biology Organization

1998 National Medicine Circles Outstanding Figures Prize, Editorial Board of the National Distinguished People in the Medical Field & The Lexicographical Work Editorial Department of China, International Famous Person Research Institute

1997 The Who's Who of China - Contemporary Medicine, The Lexicographical Work Editorial Department of China, International Famous Person Research Institute

Travel Award based on outstanding research from the Vascular Biology '97 meeting funded by the National Heart, Lung, and Blood Institute, National Institutes of Health, USA

1995 Excellent Papers in the Fourth Congress of National Youth Physiological Scholar, Sponsored by Xi-Jun Zhang Foundation of the Chinese Association for Physiological Sciences

First-prize winner Award of Excellent Paper in Nantong Association for Science and Technology, China

1993 Third-prize winner Award of Excellent Paper in Nantong Medical College

1993 Excellent Graduate Student in Suzhou Medical College

1992 Second-prize winner Award of Excellent Paper in Psychophylactic Association of Nantong City, China

1992 Excellent graduate student of Province, Education Commission of Jiangsu Province

RESEARCH INTERESTS

1. *Electrophysiology*: cardiovascular system in vivo and vitro: Including arrhythmias, arteriosclerosis, hypertension, myocardial ischemia, hypersensitivity in heart, myogenic response, ion channels (Ca2+ and K+ channels), etc.
2. *Cardiovascular Function*: physiological and pathological regulation in vivo.
3. *Signal transduction in cardiovascular system*: Including second messenger, calcium signal, etc.
4. *Cell adhesion, integrins, extracellular matrix and cell signal in vascular system.*

TECHNICAL EXPERTISE

1. *Electrophysiological techniques in heart, blood vessel and neurons:* patch clamp technique (whole-cell and single-channel recordings), microelectrode recording, ion-selective microelectrode technique, monophasic action potential technique in vivo, etc.
2. *Intercellular [Ca2+] measurement*. (e.g. Fura-2 microfluorimetry combination with patch clamp)
3. *Single cell stretching technique for mechanosensitive channel study.*
4. *Applying beads to single cell technique.*
5. *Single cell isolation technique*
6. *Tissue culture technique and ion channel expression in HEK-293 cells.*
7. *Cannulate artery and arterioles* (diameter <100 um).
8. *Intracellular perfusion* (2 PK+ pipette intracellular perfusion system)
9. *Microvessel, blood vessel, nerve preparation isolation technique.*
10. *Microinjection in single cell.*
11. *In vivo microcirculatory preparations.*
12. *Basic molecular technique.*
13. *In vivo, in vitro and in situ, dissection (surgery), isolation and functional measurements (in animal or human) of heart (isolated-perfused working heart and Langendorff heart preparations), microcirculation, nerve, respiratory, renal and other systems: including cardiovascular, kidney and respiratory function recording, pressure, flow, nerve regulation, electrocardiogram, electroencephalogram, evoked potential, microphonic potential, etc.* (Well trained. These are essential techniques for physiological teachers in China.)
14. *Hypersensitivity (anaphylaxis or allergy) and ischemia model in animal.*
15. *Certificate of Heartsaver CPR (Cardio-Pulmonary Resuscitation), American Heart Association, 2002-2004*

16. *Computer skill*: Language: Basic, Database (Foxbase), HTML, Java and JavaScript (e.g. MyHomePage for C.V. section: http://http.tamu.edu/~xinwu/wxcv.html). (a) Operating System: DOS & Windows OS, Macintosh OS, little Unix. (b) Application Program: Microsoft office program, Labview, Igor, Adobe programs (such as Pagemaker, Photoshop), StatView, Multimedia Edits (video & audio), GIF animator and many other application programs in PC and Macintosh. (c) Network and others: Network setup (i.e. CLAIM, Telnet), File Transfer Protocol (FTP), TCP/IP, Dial-up, computer and web system maintenance.

GRANT SUPPORT

1. Mechanisms of cardiac anaphylaxis-induced arrhythmias, project supported by the Public Health Department of Jiangsu Province, 1992-1995.
2. Histamine and cardiac arrhythmias, project supported by the Nantong Medical College, 1994.

SOCIETY MEMBERSHIP

- North American Vascular Biology Organization
- American Heart Association, Arteriosclerosis and Vascular Biology Section
- Member of Chinese Association for Medical Science (CAMS)
- Member of Chinese Association for Physiological Sciences (CAPS)

PUBLICATIONS

Full Papers

1. Marinez-Lemus LA, Wu X, et al. Integrins as unique receptors for vascular control. *J Vasc Res*, 2003, 40(3):211-33.
2. Waitkus-Edwards KR, Martinez-Lemus LA, Wu X, Trzeciakowski JP, Davis MJ, Davis GE and Meininger GA. $\alpha 4\beta 1$ integrin activation of L-type calcium channels in vascular smooth muscle causes arteriole vasoconstriction. *Circ Res*, 90:473-480, 2002.
3. Davis MJ, Wu X, Nurkiewicz TR, Kawasaki J, Gui P, Hill MA, Wilson E. Regulation of ion channels by integrins. *Cell Biochemistry and Biophysics*, 36:41-66, 2002.
4. Wu X, Davis GE, Meininger GA, Wilson E, Davis MJ. Regulation of the L-type calcium channel by $\alpha 5\beta 1$ integrin requires signaling between focal adhesion proteins. *J Biol Chem* 276:30285, 2001.
5. Davis MJ, Wu X, Nurkiewicz TR, Kawasaki J, Gui P, Hill MA, Wilson E. Regulation of ion channels by protein tyrosine phosphorylation. *Am J Physiol*, 281: H1835, 2001.
6. Wu X and Davis MJ. Characterization of stretch activated cation current in vascular smooth muscle cells. *American Journal of Physiology* 280: H1751-1760, 2001.
7. Davis MJ, Wu X, Nurkiewicz TR, Kawasaki J, Davis GE, Hill MA, and Meininger GA. Integrins and mechanotransduction of the vascular myogenic response. *American Journal of Physiology* 280: H1427-1333, 2001.
8. Wu X, Mogford JE, Davis GE, Platts S, Meininger GA and Davis MJ. Modulation of calcium current in arteriolar smooth muscle by $\alpha_v\beta_3$ and $\alpha_5\beta_1$ integrin ligands. *Journal of Cell Biology* 143(1): 241-252, 1998.
9. Wu X, and Davis MJ. The treatment of acute coronary syndromes. *The Circulation Frontier-From three corners: Japan, Europe, and USA* 2(1): 27-38, 1998.
10. Wu X, Teng AF, Huang WQ and Yu ZM. Role of histamine receptors in the genesis of delayed afterdepolarizations induced by specific antigen in sensitized guinea-pig papillary muscles. *Chinese Journal of Applied Physiology* 12: 178-182, 1996.

11. Wu X, Huang WQ and Yu ZM. Specific antigen-induced early afterdepolarizations and triggered activity in sensitized guinea-pig papillary muscles. *Chinese Journal of Applied Physiology* 11: 51-54, 1995.
12. Wu X, Huang WQ, Zhang QQ and Yu ZM. Effects of histamine on electrophysiological properties and triggered activity in guinea pig papillary muscles. *Methods and Findings in Experimental and Clinical Pharmacology* 16(8): 583-587, 1994.
13. Huang QW, Wu X, et al. Electrophysiological study on histamine-induced arrhythmias in guinea pig papillary muscles. *Acta Academiae Medicinae Suzhou* 14(3): 180-187, 1994.
14. Wu X, Huang WQ, Yu ZM. Histamine-induced early afterdepolarizations and triggered activity in guinea pig papillary muscles. *Chinese Journal of Applied Physiology* 9(3): 236-240, 1993.
15. Wu X. Ion channels and ion currents in ventricular muscles. *Acta Academiae Medicinae Nantong* 13(1): 89-92, 1993.
16. Huang WQ, Xu HD, Wu X, et al. Role of the central a-receptors in the modulation of carotid sinus reflex of rats. *Acta Physiologica Sinica* (Shen Li Xue Bao), 44(6) 556-561, 1992.
17. Shen H, Wu X., Evaluation of biological field by simplified psychological stress in a mice model and its antagonism against "ocular stress." *Acta Academiae Medicinae Nantong* 12(4): 293-297, 1992.
18. Wu X, et al. Views on the central transference of Biological medicine from the Nobel prize in Physiology or/and Medicine. *Journal of Education and Research Nantong* (Tong Yi Jiao Yan) 7:52-55, 1991.
19. Wu X and Chen X. Correlative analysis between the mark of medical physiology and mark of other medical courses. *Journal of Education and Research Nantong* (Tong Yi Jiao Yan) 4: 49-51, 1989.

Manuscripts submitted for review

1. Qamirani E, Wu X, Davis MJ, Kuo L, Hein TW. C-Reactive Protein Dilates Coronary Arterioles: Roles of Inward Rectifier K+ Channels and Na+/K+ ATPase. (submitted to AJP 2004)
2. Gui PC, Wu X, et al. Roles of c-Src and PKA in regulation of L-type calcium channel (Cav1.2) by $\alpha 5\beta 1$ integrin. (will soon be submitted to *Nature Cell Biology*), 2004
3. Wu X, et al. Soluble integrin ligands and calcium channels in SMCs. Am J Physiol (in preparation).
4. Wu X, et al. Selective blockade of a mechanosensitive cation channel in vascular smooth muscle (Am J Physiol), in preparation.
5. Wu X, et al. cytoskeleton proteins involved in integrin-activation of calcium channels. In preparation.
6. Wu X et al: The $\alpha v\beta 3$ integrin is unique in signaling responses to soluble integrin ligands (J Biol Chem)

Book Chapters

1. Wu X, et al. Basic theory and application of computer in Physiology. In: Experimental Guide of Physiology, Teng AF, et al. (eds.), pp 17-22, Southeastern University Press, China, 1992.
2. Wu X, et al. Measure of strength -duration curve with computer. Experimental Guide of Physiology, Teng AF, et al., (eds.), pp 49-51, Southeastern University Press, China, 1992.
3. Wu X. The regulation of cardiac output. In: Guide for Physiological Experiment, Teng AF, et al. (eds.), pp 64-66, Suzhou Medical College Press, China, 1988.
4. Wu X. The measurement of human arterial blood pressure. In: Guide for Physiological Experiment, Teng AF, et al. (eds.), pp 67-68, Suzhou Medical College Press, China, 1988.
5. Wu X. Physical diagnosis of heart sound. In: Guide for Physiological Experiment, Teng AF, et al. (eds.), pp 69-70, Suzhou Medical College Press, China, 1988.

6. Wu X. Survey of microcirculation in animals. In: Guide for Physiological Experiment, Teng AF, et al. (eds.), pp 70-71, Suzhou Medical College Press, China, 1988.

Abstracts (after 1993)

1. Wu X, et al. Regulation of Ca2+- activated K+ channels by $\alpha_5\beta_1$ integrin. 2003 Biophysics in San Antonio, TX *AND* 2003 FASEB in San Diego, CA
2. Gui P, Wu X, et al. Modulation of Cav1.2 by $\alpha_5\beta_1$ integrin requires PKA and Src phosphorylation of the α1c channel subunit. 2003 Biophysics in San Antonio, TX *AND* 2003 FASEB in San Diego, CA
3. Ling S, Gui P, Wu X et al. Roles for cSrc and protein kinase A in the modulation of L-type Ca2+ channels by integrins. 2003 Biophysics in San Antonio, TX.
4. Wu X and Davis MJ. Effects of mechanosensitive ion channel blockers on the vascular myogenic response. 2002 FASEB in New Orleans, LA.
5. Meininger GA, Martinez-Lemus LA, Sun Z, Trache A, Wu, X et al. Role of rxtracellular matrix-integrin interaction in short and long-term responses to pressure. J Vasc Res, Suppl 1. 2002 European Society for Microcirculation Meeting in Exeter, England.
6. Wu X, Davis GE, Meininger GA, Wilson E and Davis M. Role of cytoskeleton and focal adhesion proteins in regulation of vascular smooth muscle L-type calcium channels by $\alpha_5\beta_1$ integrin. FASEB J, 2001, 15.
7. Meininger GA, Waitkus-Edwards, KR, Wu X, et al. α4β1 integrin-mediated vasoconstriction of isolated arterioles occurs through activation of L-type calcium channels. 2001 FASEB, Orlando, FL.
8. Wu X, Davis GE, Wilson E, Meininger GA and Davis M. Regulation of the L-type calcium channel by $\alpha_v\beta_3$ and $\alpha_5\beta_1$ integrins requires signaling between focal adhesion proteins. 2000 FASEB SUMMER RESEARCH CONFERENCES
9. Wu X, Davis GE, Meininger GA, Wilson E and Davis M. Integrin regulation of L-type calcium channels requires signaling between focal adhesion proteins. FASEB J, 2000, 14(4):A1.
10. Meininger GA, Platts SH, Wu X, Davis MJ, Davis GE. Integrins and ion channel sin vascular smooth muscle. International Symposium on developments in smooth muscle and endothelial cell signaling. Nagoya, Japan, May, 1999.
11. Wu X, Davis GE, Meininger GA, Davis MJ. Role of tyrosine kinases in modulation of smooth muscle cell calcium channels by $\alpha_5\beta_1$ integrin ligands. FASEB J 13(4): A45, 1999.
12. Wu X, Mogford Je, Davis GE, Platts S, Meininger GA and Davis MJ. Modulation of Ca^{2+} current in arteriolar smooth muscle by $\alpha_v\beta_3$ and $\alpha_5\beta_1$ integrin ligands. Molecular Biology of Cell 9:419a-pos2431, 1998.
13. Wu X and Davis MJ. Stretch-activated cation current in vascular smooth muscle. FASEB J 12(4): A3 (NO.16), 1998.
14. Wu X, Meininger GA, Platts SH, Davis GE, Mogford JE, Platts SH and Davis MJ. Electrophysiological evidence for integrin modulation of calcium channels in rat arteriolar smooth muscle. Biophysic J 72: A34: M-pos 454, 1997.
15. Wu X and Davis MJ. Characterization of stretch activated cation current in vascular smooth muscle cells. Microcirculation 4(1): 168, 1997.
16. Wu X, Mogford JE, Davis GE, Platts S, Meininger GA and Davis MJ. Integrin modulation of calcium channels in rat arteriolar smooth muscle. Microcirculation 4(1): 136, 1997.
17. Xin Wu, Mogford JE, Platts SH, Davis GE, Meininger GA and Davis MJ. Integrin-mediated dilation of arterioles in skeletal muscle may involve inhibition of L-type Ca^{2+} channels. FASEB J 10(3):A54 (NO. 311), 1997.

18. Xin Wu, Davis MJ, et al. Coronary arteriolar dilation to KCl is mediated by an inwardly rectifying K^+ channel in smooth muscle. Microcirculation 3: 110, 1996.
19. Xin Wu, Mogford JE, Platts SH, Davis GE, Meininger GA and Davis MJ. Integrin-mediated dilation of arterioles in skeletal muscle may involve inhibition of L-type Ca^{2+} channels. The first Texas A&M University Health Science Center Research Symposium. #68, 1996.
20. Wu X, et al. Mechanisms of histamine-induced early afterdepolarizations and triggered activity in guinea pig papillary muscles. Abstracts of The Third Congress of Federation of Asian and Oceanian Physiological Societies. Organized by FAOPS, pp 30, Shanghai, China, Nov. 1994.
21. Wu X, et al. The mechanisms of histamine-induced arrhythmia in guinea-pig ventricular muscle. Proceedings of the XIX Chinese Physiological Conference, Chinese Association for Physiological Sciences, pp 182, Wuhan, China, May 1994.
22. Huang WQ, Wu X, et al. Early and delayed afterdepolarization induced by cardiac anaphylaxis in guinea pig papillary muscle cells. Proceedings of the XIX Chinese Physiological Conference, Chinese Association for the Physiological Sciences, pp 182, Wuhan, China, May 1994.
23. Wu X, et al. Mechanisms of early afterdepolarizations and triggered activity in guinea pig papillary muscles induced by histamine. Journal of Chinese Pharmaceutical Sciences 3:172, 1994.
24. Wu X, et al. Cardiac anaphylaxis-induced early afterdepolarizations and triggered activity in guinea pig papillary muscles. Proceedings of the Third China-Japan Joint Meeting on Pharmacology, Sponsored by Chinese and Japanese Pharmacological Association, pp 133, Beijing, China, May 1993.
25. Wu X, et al. Induction of early afterdepolarizations and triggered activity by histamine in guinea pig papillary muscle. Proceedings of the Third China-Japan Joint Meeting on Pharmacology, Sponsored by Chinese and Japanese Pharmacological Association, pp 163, Beijing, China, May 1993.
26. Wu X, et al. Mechanisms of early and delayed afterdepolarization induced by cardiac anaphylaxis. Abstracts of The First Young Physiological Scientist Meeting (CAPS News Communication, supplement), Sponsored by Chinese Association for Physiological Sciences, pp 7, Beijing, China, 1993.