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***Education:***

B.S. (Biology), National Taiwan Normal University, 1976.  
M.S. (Physiology), National Taiwan University, College of Medicine, 1980.  
Ph.D. (Physiology/Cell Biology), Duke University Medical Center, Durham, North Carolina, 1986.

***Research and Professional Experience:***

Professor (2007-present)  
Dept. of Pharmaceutical Sciences, University of Arkansas for Medical Sciences (UAMS), Little Rock, AR.  
Director (2010- present)  
Biotelemetry & Ultrasonic Imaging Core for small animals, UAMS.  
Associate Professor (1998-2007)  
Dept. of Pharmaceutical Sciences, UAMS.  
Associate Professor (1998-present) (Joint appointment)  
Dept. of Pharmacology & Toxicology, UAMS.  
Research Associate Professor (1997-1998)  
Dept. of Pharmaceutical Sciences, UAMS.  
Research Associate Professor (1996-1997)  
Dept. of Medicine, Div. of Cardiology, UAMS.  
Assistant Professor (1990-1996)  
Dept. of Medicine, Div. of Cardiology, UAMS, (Supervisor: Jon P Lindemann, M.D.)  
Assistant Medical Research Professor (1990-1990)  
Dept. of Cell Biology, Div. of Physiology, Duke Univ. Medical Center, Durham, NC  
Research Associate (1986-1990)  
Dept. of Physiology, Duke Univ. Medical Center, (Supervisor: Dr. M. Lieberman)  
Predoctoral Fellow (1981-1986)  
Dept. of Physiology, Duke Univ. Medical Center, (Supervisor: Dr. M. Lieberman)  
Teaching Assistant (1979-1981)  
Dept. of Physiology, National Taiwan University, College of Medicine, Taipei, Taiwan  
Chief Examiner (1976-1978)  
Clinic Biochem. Laboratory of 813th Army Health Examination Hospital, Taipei, Taiwan

***Honors and Awards:***

Open Scholarship to National Taiwan Normal University, 1971-1976.  
NSC Scholarship, Taiwan, ROC, 1978-1980.  
Graduate Studies Scholarship, Duke University Medical Center, 1982-1986.  
American Physiological Society (Cell and General Physiology Section) Award, 1986.  
Medical Research Endowment Award, UAMS, 1992-1993  
Research Advisory Committee of American Heart Association, SWA, 2007-2011  
Seeds of Science grant award, Winthrop P. Rockefeller Cancer Institute, UAMS, 2016.

***Societies:***

The American Physiological Society (1991-present); Society of General Physiologists (1991-1997);  
New York Academy of Sciences (1991-1995).

***External Reviewer for Scientific Journals:***

American Journal of Physiology: Cell Physiology, Heart Circ. Physiology, Regulatory, Integrative and Comparative Physiology.  
Circulation Research; Cytokines; Journal of the American Society of Nephrology; Journal of Applied Physiology; Journal of Molecular and Cellular Cardiology; Journal of Physiology (London.)  
Biochemical Pharmacology; Medical Sciences Monitor; Journal of Anesthesiology; Biochemical Pharmacology; Journal of Biological Chemistry; Journal of the American Society of Nephrology;  
BioMedical Engineering Online; Acta Pharmacologica Sinica; Oriental Pharmacy and Experimental Medicine; Cell Biochemistry & Function; Journal of medicinal Plants Research; PLOS ONE;  
Oncology Letters

***National/Regional Committee:***

Member, Research Advisory Committee of American Heart Association (AHA)–Heartland Affiliate (2003-2007)  
Member, Research Advisory Committee of AHA – South Central Affiliate (2007-2011)  
Member, Region III Review Consortium of AHA (2007-2008)  
Member, Editorial Advisory Board, International Journal of Genuine Traditional Medicine (e-TANG.org, 2010-present)  
Member, Editorial Board, Journal of Pharmacogenomics & Pharmacoproteomics (2012-2014)  
Member, Editorial Board, Journal of Pharmaceutics & Drug Development (2013-present)

***Administrative committee at UAMS***

Member, Research and Graduate Studies (1997-present)  
Member, Graduate Council Faculty Committee for COP (2003-2007)  
Member, Graduate Council Representative (2005-2007)  
Member, Committee for Allocation of Graduate Student Research Funds (CAGSRF) (2001-2005)  
Member, Institutional Animal Care and Use Committee (IACUC) (2005-2009)  
Member, Student-Faculty Affairs Committee, COP (2001-2003, 2005-2007)  
Member, Admission Committee, COP (2003-2005, 2007-2009, 2010-2012)  
Member, Student Research Activity Committee, COP (2010-2013)  
Member, Educational & Technology Support Advisory Committee, COP (2010-2012)  
Member, Assessment Committee, COP (2011-2013, 2014-2016)  
Member, Campus Assignment Committee, COP (2016-2017)

**Doctoral Advisory Committee:**

- Kristine A. Kimball (1992): The effect of Diabetes on Cardiac Pacemaking Activity. Department of Pharmacology and Toxicology, UAMS.
- Anthony P. Williamson (1994-1998): Cardiac  $\alpha_1$ -Adrenergic Receptor Subtypes. Department of Pharmacology and Toxicology, UAMS.
- Tracie A. Kinard (1994-1998): Electrophysiological effects of altering the ratio of  $\alpha$  subunits of the Na/K pump. Department of Pharmacology and Toxicology, UAMS.
- Hong Wang (1997-1998): Androgen-induced cardiomyocyte hypertrophy. Department of Pharmaceutical Sciences, UAMS (M.S. program)
- Shayla W. Williams (1997-2001): Examination of the cell death cascade and the mechanisms of action of diverse cytoprotective agents in renal proximal tubules. Department of Pharmacology and Toxicology, UAMS.
- Hui Liu (1999-2000): Lovastatin inhibits phenylephrine-induced ERK activation and growth of cardiac myocytes. Department of Pharmaceutical Sciences, UAMS (M.S. program)
- Richard P. Wyeth (1998-2001): The role of Cl in cardiac muscle  $\alpha_1$  adrenergic response. Department of Physiology and Biophysics, UAMS.
- Jay Harman (1998-2002): Roles of Cl channels in renal injury. Department of Pharmacology and Toxicology, UAMS.
- Dianjun Cao (1998-2002): Gender- and aging-related alterations in cardiac function. Department of Pharmacology and Toxicology, UAMS
- Jaclyn Harris (2003): Department of Pharmacology and Toxicology, UAMS
- JiaWei Chen (2003-2005): Role of LOX-1 receptor in atherosclerosis. Department of Biophysics and Physiology, UAMS (Ph.D. program)

**(Mentor or Chairperson of Dissertation Committee)**

- Kelvin D. Schreur (1993-1996): Electrophysiological effects of cytokines (IL-1 $\alpha$ ) on cultured rat ventricular myocytes. Department of Pharmacology and Toxicology, UAMS.
- XinWen Yu (1998-2002): Mechanisms underlying cardiac inotropic effect of interleukin-6. Department of Pharmacology and Toxicology, UAMS.
- Kung Wang (2000): Mechanisms underlying IL-1 $\alpha$ -induced cardiac IL-6 production. Department of Pharmaceutical Sciences, UAMS (M.S. program).
- JiaXuan Zhu (2000-2001): Possible mechanisms underlying disruption of mitochondrial integrity during tumor necrosis factor- $\alpha$ -induced apoptosis in adult rat ventricular myocytes. Department of Pharmaceutical Sciences, UAMS (M.S. program).
- Lalit Oberoi (2005-2007): Department of Pharmaceutical Sciences (Ph.D. track of Department of Pharmacology & Toxicology)

**Training Postdoctoral Fellows/visiting scholars:**

- Dr. S-N Wang (1996)
- Dr. Qian Chen (2003-2004)
- Dr. Wei Xiong (2008-2009)
- Dr. Tao Wang (2014-2015)

**Training Predoctoral and Students in Summer Programs:**

- Jackyn Harries (1<sup>st</sup> year graduate student, Department of Pharmacology & Toxicology and Pharmaceutical Sciences) – 3 months lab rotation in 2002
- Manish Tiwari (1<sup>st</sup> year graduate student Department of Pharmacology & Toxicology) – 3-months lab rotation (2002-2003)
- Chad Krebs (Pharmacy 2<sup>nd</sup> year, P2, student) – summer Research in Partnership of ACRC program (2003)

## CURRICULUM VITAE

S. Jesse Liu -4

Cameron Bradford (Vanderbilt University) – summer Research program introduced by Mr. Otis Tyler (2005)

Hui Lin (P2 student) - summer Research in Partnership of ACRC program (2006)

Peter Dipper (P2 student) - summer Research program in COP (2007)

Elizabeth G. Horn (Univ of Arkansas -Fayetteville) – INBRE Summer (2007)

Aja Nia Herne (Univ of Arkansas -Fayetteville) – Arkansas Commitment (2010)

Beanna McElroy (Emery University) - Arkansas Commitment (2011)

Sarah Bishop (Ouachita Baptist University) – INBRE Summer (2013); Student Summer Research (2015)

Jayda Williams (Univ. of Central Arkansas) - INBRE Summer (2016)

### ***Teaching Experience:***

Laboratory of Human Physiology (4 credit hours): Teaching assistant (also covering 1-2 lectures) on neurophysiology and cardiovascular sections for medical students (COM), and students (Pharmacy, Nursing and Public health) in College of Medicine, National Taiwan University; 1978-1981.

Group discussion in Medical Physiology (PHS course): graduate student as a course assistant for medical students, Duke University Medical Center; 1982-1985.

Doctoral Dissertation (PCOL 700V, 3 credit hours): mentor; Department of Pharmacology & Toxicology (COM); Graduate program (COP), UAMS; 1993-1997; 1998-2004; 2005-2007.

Methods in Pharmaceutical sciences (PHSC 5053, 3 credit hours): the Course director for a team-taught hand-on course covering modern biomedical technologies; Graduate program (COP), UAMS, 1998-2001.

Seminar (PHSC 5041, 1 credit hour): the Course director; Graduate program, UAMS, 1999-2000

Biotechnology (PhSc 5623, 3 credit hours): the 3<sup>rd</sup> year (P3) Pharm.D. students, Dept. of Pharmaceutical Sciences, COP, UAMS, 2004-2007. Lecture topics include Recombinant DNA and Proteomics.

Pharmaceutical Biochemistry (PhSc 3215, 5 credit hours): P1 students, Dept. of Pharmaceutical Sciences, UAMS, 2004-2005. Lecture topics include Oxidative stress, Biological membranes

Biological and Cellular Chemistry (PhSc 3215, 5 credit hours): P1 students, 12 hours in 2005 and 14 hours in 2006-2007. Lecture topics include Metabolism of cholesterol, Steroid hormone synthesis, Prostaglandins and leukotrienes, Biological membranes, Transport across cell membranes, Gas exchange and transport, Gas transport and pH regulation, Acid-base balance, Digestion and absorption (3), Micronutrients and Macronutrients.

Career Orientation and Communications (PHPR 3422): COP, 2011 (contact hours 15.5): mentor for 2 P1 students for the first two years of COP education.

Experimental Pharmacology & Toxicology (PCOL 5203 Graduate program of Department of Pharmacology & Toxicology (COM). 1.5 hours, 2011-2015): Assessment of cardiovascular (CV) function (2011-2015) and Ultrasound Imaging for small animals (2013-2015)

Anatomy/Physiology/Pathology (PhSc 3105, 5 credit hours; Dept. of Pharmaceutical Sciences, COP, UAMS): The Circulation System (21 lecture hours, 2012-2013) - Chapters 3, 29-33 of *Ganong's Review of Medical Physiology*. The heart and CV regulation (10 hours) - Chapters 29, 30, 32 of *Ganong's Review of Medical Physiology*, 2014-present.

Pharmacology II (PhSc 4134, 5 credit hours): Chemotherapy of Microbial Diseases- Chapters 49-53, 56 of *Goodman & Gilman's: The Pharmacological Basis of Therapeutics*; 11 lecture hours, 2013; Antimicrobial agents- Chapters 52-53, 55; 15 lectures, 2014-present.

**Publications:****A. Published Articles and Book Chapters.**

1. Huang, T-F., **S. Liu** and B-S. Hsieh. (1981). Influence of the fastigial nucleus on the plasma renin activity. *Proceedings of National Science Council. (part B)* 5: 400-403.
2. **Liu, S.** and T-F. Huang. (1982). Effect of valinomycin and  $MnCl_2$  on the ventricular fibrillation threshold and on the aconitine-induced arrhythmia. *Journal of Formosan Medical Association* 81: 903-909.
3. Lieberman, M., A. LeFurgey, E. Murphy and **S. Liu**. (1985). Cultured heart cells as a model for studying myocardial ischemia. In: *Pathobiology of Cardiovascular Injury*. H.L. Stone and W.B. Weglicki (editors) Martinus Nijhoff Publishers, The Hague, Boston, pp. 145-155.
4. **Liu, S.** (1986). Thesis: Electrophysiological studies of transmembrane coupled ion movements in cultured chicken embryo heart cells.
5. Jacob, R., M. Lieberman and **S. Liu**. (1987). Electrogenic sodium-calcium exchange in cultured heart cells. *Journal of Physiology (Lond.)*, 387: 567-588.
6. **Liu, S.**, R. Jacob, D. Piwnica-Worms and M. Lieberman. (1987).  $(Na^+ + K^+ + 2Cl^-)$  cotransport in cultured embryonic chick heart cells. *American Journal of Physiology* 253:C721-C730.
7. Lobaugh, A., **S. Liu** and M. Lieberman (1987).  $Na/K$  pump function in cultured embryonic chick heart cells. In: *Heart Function and Metabolism*. N.S. Dhalla, G.N. Pierce and R.E. Beamish (editors). Martinus Nijhoff Publishers, The Hague, Boston, pp. 181-190.
8. **Liu, S.**, R. Jacob, D. Piwnica-Worms and M. Lieberman. (1989). Interaction of  $(Na^+ + K^+ + 2Cl^-)$  cotransport and the  $Na/K$  pump in cultured chick cardiac myocytes. *Journal of Molecular and Cellular Biochemistry*, 89:147-150.
9. Stimers, J. R., L. A. Lobaugh, **S. Liu**, N. Shigeto and M. Lieberman. (1990). Intracellular sodium affects ouabain interaction with the  $Na^+/K^+$  pump in cultured chick cardiac myocytes. *Journal of General Physiology*, 95:77-95.
10. **Liu, S.** and M. Lieberman. (1990). Acidification induced  $Na^+/K^+$  pump inhibition and  $Ca^{2+}$ - $H^+$  interaction in cultured chick heart cells. In: *Ionic Currents and Ischemia*. J. Vereecke (editor). Leuven University Press, pp.323-325.
11. **Liu, S.**, D. Piwnica-Worms and M. Lieberman. (1990). Intracellular pH regulation in cultured chick embryonic heart cells. *Journal of General Physiology* 96: 1247-1269.
12. Freudenrich, C. C., **Shi Liu**, and Melvyn Lieberman. (1991). Trace Element-induced Toxicity in Cultured Heart Cells. In: *Biological Trace Element Research*. K.S. Subramanian, G.V. Iyengar and K. Okamoto (editors). ACS Symposium Series 445. American Chemical Society, Washington, DC. pp. 332-343.
13. Stimers, J. R., **S. Liu** and M. Lieberman. (1991). Apparent affinity of the  $Na^+/K^+$  pump for ouabain in cultured chick cardiac myocytes. *Journal of General Physiology*, 98:815-833.
14. **Liu, S.**, J.R. Stimers and M. Lieberman. (1991). Whole-Cell Current Associated With  $Na^+/Ca^{2+}$  Exchange in Cultured Chick Cardiac Myocytes. *Annual New York Academy of Science* 639:486-470.
15. Freudenrich, C. C., E. Murphy, **S. Liu** and M. Lieberman. (1992). Magnesium homeostasis in cardiac cells. *Molecular and Cellular Biochemistry* 114:97-103.
16. Stimers, J. R., **S. Liu** and T. A. Kinard. (1993). Effect of  $Na_i$  on activity and voltage dependence of the  $Na^+/K^+$  pump in adult rat cardiac myocytes. *Journal of Membrane Biology*. 135:39-47.
17. Tracie A. Kinard, Xiao-Yuan Liu, **Shi Liu** and Joseph R. Stimers. (1994). Effect of  $Na_{pip}$  on  $K_o$  activation of the  $Na^+/K^+$  pump in adult rat cardiac myocytes. *American Journal of Physiology* 266: C37-C41.
18. **Liu, S.**, R. Thweatt, C. K. Lumpkin, Jr. and S. Goldstein. (1994). Suppression of Calcium-dependent membrane currents in human fibroblasts by replicative senescence and forced expression of a novel gene sequence. *Proceedings of the National Academy of Science (USA)* 91:2186-2190.

19. Goldstein S., **S. Liu**, C. K. Lumpkin, Jr., M. Huang, D. Lipschitz and R. Thweatt. (1994). Derangements in calcium-dependent membrane currents and calcium metabolism in senescent human fibroblasts are associated with overexpression of a novel gene sequence. *Annual New York Academy of Science* 747:302-312.
20. **Liu, S.**, J.R. Stimers and M. Lieberman. (1994). A novel Cl<sup>-</sup> conductance in cultured chick cardiac myocytes: role of intracellular Ca<sup>2+</sup> and cAMP. *Journal of Membrane Biology* 141: 59-68.
21. **Liu, S.** and M. Lieberman. (1994). Electrodiffusive movements of Cl<sup>-</sup> in Na<sup>+</sup>-free solution: a possible Ca<sup>2+</sup>-activated Cl<sup>-</sup> conductance in cultured heart cells. *Cardiovascular Research* 28:1629-1634.
22. **Liu, S.** and K.D. Schreur. (1995). G-protein mediated suppression of L-type Ca<sup>2+</sup> current by interleukin-1 $\beta$  in cultured adult rat ventricular myocytes. *American Journal of Physiology* 268:C339-C349.
23. Kennedy, R. H., R. P. Wyeth, P. Gerner, **S. Liu**, H. J. Fontenot and E. Seifen. (1995). Tetramethyl-ammonium is a muscarinic agonist in rat heart. *American Journal of Physiology* 268:C1414-C1417.
24. Schreur, K.D. and **S. Liu** (1996). 1,2-Dioctanoyl-*sn*-Glycerol depresses cardiac L-type Ca<sup>2+</sup> current: Independent of protein kinase C activation. *American Journal of Physiology* 270:C655-C662.
25. Kennedy, R.H., E. Seifen, S-N. Wang, H.J. Fontenot and **S. Liu**. (1996). Effect of aging on Na<sup>+</sup> pump current in rat ventricular myocytes. *Mechanisms of Aging and Development* 89:59-66.
26. Zhou, W.G., Fontenot, H.J., **S. Liu**, and R.H. Kennedy. (1997). Modulation of cardiac calcium channels by propofol. *Anesthesiology* 86:670-675.
27. McHowat, J. and **S. Liu** (1997). Interleukin-1 $\beta$  stimulates phospholipase A<sub>2</sub> activity in adult rat ventricular myocytes. *American Journal of Physiology* 272:C450-C456.
28. Schreur, K.D. and **S. Liu** (1997). The involvement of ceramide in the inhibitory effect of interleukin-1 $\beta$  on L-type Ca<sup>2+</sup> current in rat ventricular myocytes. *American Journal of Physiology* 272:H2591-H2598.
29. **Liu, S.**, R. B. Melchert, and R.H. Kennedy. (1997). Inhibition of L-type Ca<sup>2+</sup> channel current in rat ventricular myocytes by terfenadine. *Circulation Research* 81:202-210.
30. **Liu, S.J.**, and J.R. Stimers (1998). Modulation of Cl<sup>-</sup> current by external Ca<sup>2+</sup> in cultured chick cardiac myocytes: a Ca<sup>2+</sup> inhibitable Cl<sup>-</sup> current. *Experimental Physiology* 83(3):323-336.
31. **Liu, S.J.** and R.H. Kennedy (1998).  $\alpha_1$ -Adrenergic activation of L-type Ca current in rat ventricular myocytes: perforated patch-clamp recordings. *American Journal of Physiology* 274:H2203-H2207.
32. McHowat, J., **S. Liu** and M. H. Creer (1998). Selective hydrolysis of plasmalogen phospholipids by Ca-independent PLA<sub>2</sub> in hypoxic ventricular myocytes. *American Journal of Physiology* 274:C1727-C1737.
33. **Liu, S.J.** and J. McHowat (1998). Stimulation of different phospholipases A<sub>2</sub> by tumor necrosis factor- $\alpha$  and interleukin-1 $\beta$  in adult rat ventricular myocytes. *American Journal of Physiology* 275 (4):H1462-H1472.
34. **Liu, S.J.**, WeiGuo Zhou and R.H. Kennedy (1999). Suppression of  $\beta$ -adrenergic responsiveness of L-type Ca<sup>2+</sup> channel current by interleukin-1 $\beta$  in adult rat ventricular myocytes. *American Journal of Physiology* 276:H141-H148.
35. **Liu, S.J.**, R.P Wyeth, R.B. Melchert and R.H. Kennedy (2000). Aging-induced changes in whole-cell K<sup>+</sup> and L-type Ca<sup>2+</sup> currents in rat ventricular myocytes. *American Journal of Physiology* 279:H889-H900.
36. **Liu, S.J.**, RH Kennedy, MH. Creer and J. McHowat (2002) Alterations in Ca<sup>2+</sup> Cycling by Lysoplasmethylcholine in Adult Rabbit Ventricular Myocytes. *American Journal of Physiology* 284: C826-C838. PMID: 12456398

37. **Liu, S.J.** and RH Kennedy (2003) Positive Inotropic Effect of Ceramide in Adult Ventricular Myocytes: Mechanisms Dissociated from Its Reduction in Ca<sup>2+</sup> Influx. *American Journal of Physiology* 285:H735-H744. PMID: 12730052
38. Kennedy RH and **Liu, S.J.** (2003) Sex differences in L-type Ca current after chronic ethanol consumption in rats. *Toxicology and Applied Pharmacology* 189: 196-203. PMID: 12791304
39. Yu, X-W, RH Kennedy and **S.J. Liu** (2003). JAK2/STAT3, not ERK1/2, Pathway Mediates Interleukin-6-elicited Inducible NOS Activation and Negative Inotropic Effect in Adult Ventricular Myocytes. *Journal of Biological Chemistry* 278: 16304-16309. PMID: 12595539
40. Yu, X-W, Q Chen, RH Kennedy and **S.J. Liu** (2005). Inhibition of sarcoplasmic reticular function by chronic interleukin-6 exposure via iNOS in adult ventricular myocytes. *Journal of Physiology (London)* 566.2: 327-340. PMCID: **PMC1464756**
41. Yu, X-W, MeeiYueh G Liu, RH Kennedy and **S.J. Liu** (2005). Both cGMP and peroxynitrite mediate chronic interleukin-6-induced negative inotropy in adult ventricular myocytes. *Journal of Physiology (London)* 566.2: 341-353. PMCID: **PMC1464742**
42. JiaXuan Zhu, MeeiYueh Liu, Richard H. Kennedy and **Shi J. Liu** (2006). TNF- $\alpha$ -induced impairment of mitochondrial integrity and apoptosis mediated by caspase-8 in adult ventricular myocytes. *Cytokine* 34:96-105. PMID: 16730193
43. Daniel SD Liu, Chad E. Krebs and **Shi J. Liu** (2007). The role of PKC- $\alpha$  in cytotoxicity induced by anticancer drugs in MCF-7 breast cancer cells. *Journal of Cellular Biochemistry* 101:517-528. PMID: 17171646
44. **Shi J. Liu** (2007). Inhibition of L-type Ca<sup>2+</sup> channel current and negative inotropy induced by arachidonic acid in adult rat ventricular myocytes. *American Journal of Physiology* 293:C1594-C1604. PMID: 17804608
45. **Shi J. Liu** and R. B. Melchert (2010). *In vitro* Cultured Cardiomyocytes for Evaluating Cardiotoxicity. In: Comprehensive Cardiotoxicity, 2<sup>nd</sup> edition. Charlene McQueen (editor). Elsevier, Oxford: Academic Press. Volume 6, pp.113-131.
46. Lalit Oberoi, Toshiyuki Akiyama, Kuo-Hsiung Lee and **Shi J. Liu** (2011). The aqueous extract, not organic extracts, of *Terminalia arjuna* bark exerts cardiotoxic effect on adult ventricular myocytes. *Phytomedicine* 18: 259-265. PMID: 21315570
47. **Shi J. Liu** (2012). *Terminalia arjuna* bark and inotropic therapy for heart failure. *International Journal of Genuine Traditional Medicine (TANG)* 2(3):21.1-21.8
48. **Shi J. Liu** (2013). Characterization of functional capacity of adult rat ventricular myocytes in long-term culture. *International Journal of Cardiology* 168:1923-1936. PMID: 23375882
49. Maria Theresa E Montales, Stepan B Melnyk, **Shi J Liu**, Frank A Simmen, Yunying L Liu and Rosalia CM Simmen (2016). Metabolic history impacts mammary tumor epithelial hierarchy and drug response in mice. *Endocrine-Related Cancer* 23(9): 677-690.
50. **Shi J. Liu** and R. B. Melchert (2016). *In vitro* Cultured Cardiomyocytes for Evaluating Cardiotoxicity. In: Comprehensive Cardiotoxicity, 3<sup>rd</sup> edition. Charlene McQueen (editor). Elsevier, Oxford: Academic Press. Volume 6 (*In press*)

**B. Abstracts:**

1. Jacob, R., **S. Liu**, E. Murphy and M. Lieberman. (1984). Electrogenic Na<sup>+</sup>/Ca<sup>2+</sup> exchange in cultured heart cells. *J. Gen. Physiol.* 84: 38a-39a.
2. **Liu, S.**, R. Jacob, D. Piwnica-Worms and M. Lieberman. (1985). KCl cotransport in cultured heart cells measured with ion-sensitive microelectrodes. *Biophys. J.* 42: 462a.
3. **Liu, S.**, R. Jacob and M. Lieberman. (1985). Electrogenic Na<sup>+</sup>/Ca<sup>2+</sup> exchange in cultured chick heart cells demonstrated using ion selective microelectrodes. *Fed. Proc.* 44(5): 1580
4. Jacob, R., **S. Liu** and M. Lieberman. (1985). Block of sodium-calcium exchange in cultured heart cells by lanthanum and manganese. *J. Physiol.* 371: 192p.

5. LeFurgey, A., **Shi Liu**, Melvyn Lieberman, Peter Ingram. (1986). Quantitative Elemental Characterization of Cultured Heart Cells by Electron Probe X-Ray Microanalysis and Ion Selective Electrodes. *Microbeam Analysis*: 205-208.
6. **Liu, S.**, R. Jacob, M. Lieberman and D. Piwnica-Worms. (1986). (Na<sup>+</sup>+K<sup>+</sup>+2Cl<sup>-</sup>) cotransport in cultured chick heart cells. *Fed. Proc.* 45(3): 653a.
7. Lieberman, M., Lobaugh, L. A., **S. Liu**, and R. Jacob. (1986). Functional adaptation of the Na/K pump in cultured embryonic chick heart cells. *J. Mol. and Cell. Cardiol.* 18 (Supplement 3):40.
8. **Liu, S.**, R. Jacob and M. Lieberman (1986). Coupled ion transport in cultured chick embryo heart cells. ISM Symposium, Satellite Symposium of XXX Congress of International Union of Physiological Sciences. p.54.
9. **Liu, S.**, D. Piwnica-Worms and M. Lieberman. (1988). Cl<sup>-</sup>/HCO<sub>3</sub><sup>-</sup> exchange and pH<sub>i</sub> regulation in cultured chick heart cells. *Biophysical Journal.* 53:643a.
10. Lieberman, M. and **S. Liu**. (1988). Na-dependent Cl<sup>-</sup>/HCO<sub>3</sub><sup>-</sup> exchange and pH<sub>i</sub> regulation in cultured chick heart cells. *Journal of Physiology* 407:116P.
11. LeFurgey, A., **S. Liu**, P. Ingram and M. Lieberman. (1988). Coupled transport in cultured heart cells: a microanalytical approach. *Journal of Molecular and Cellular Cardiology* 20 (Supplement III):S.30.
12. **Liu, S.** and M. Lieberman. (1989). Intracellular Ca and H interaction in cultured chick heart cells. *Biophysical Journal* 55:286a.
13. Stimers, J. R., **S. Liu**, L. A. Lobaugh and M. Lieberman. (1989). [Na<sup>+</sup>]<sub>i</sub> and [K<sup>+</sup>]<sub>o</sub> determine apparent affinity of the Na<sup>+</sup>/K<sup>+</sup> pump for ouabain in cardiac myocytes. *J. Gen. Physiol.* 94:15a.
14. Ransmusson, R., **S. Liu** and M. Lieberman. (1990). Volume regulatory changes in spherical aggregates of cultured chick heart cells. *Biophysical Journal.* 57:132a.
15. Stimers, J. R., S. Liu and M. Lieberman. (1990). Apparent affinity of the Na<sup>+</sup>/K<sup>+</sup> pump for ouabain in embryonic chick cardiac myocytes. *FASEB J.* 4:a295.
16. Stimers, J. R., **S. Liu** and M. Lieberman. (1991). Na<sup>+</sup>/K<sup>+</sup> pump sites induced by low K<sup>+</sup> in voltage clamped cultured chick cardiac myocytes. *Biophys. J.* 59:544a.
17. **Liu, S.** and M. Lieberman. (1991). Calcium-activated chloride conductance in cultured chick heart cells. *FASEB J.* 5: a381.
18. **Liu, S.**, J. R. Stimers and M. Lieberman. (1992). Cyclic AMP activates Cl<sup>-</sup> currents in cultured chick heart cells. *The Pharmacologist* 34(3).
19. Stimers, J. R. and **S. Liu**. (1993). Effect of Na<sub>i</sub> on activity and voltage dependence of the Na<sup>+</sup>/K<sup>+</sup> pump in rat cardiac myocytes. *FASEB J.* 7: A96.
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50. **Shi J. Liu** and MeeiYueh G. Liu (2009). Cellular Senescence and Remodeling of Adult Ventricular Myocyte (AVM) in Primary Culture. *FASEB. J.* 23, 420.5

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52. Sarah Bishop and **Shi J Liu** (2013). "Protective effects of aqueous extract of *Terminalia arjuna* bark against doxorubicin-induced cardiotoxicity. SE Regional IDeA meeting (Nov 15-17). 1<sup>st</sup> place oral presentation by S Bishop (INBRE student)
53. **Shi J. Liu** (2014). Ultrasound Biomicroscopic Study of Arteries in Detection of Doxorubicin-induced Disorders. *Artery Research* 8(4): 173.
54. **Shi J. Liu** and Sarah Bishop (2015) The Aqueous Extract of *TA* Bark Reduces Mitochondrial Oxidative Stress Induced by Doxorubicin in H9c2 cells. *FASEB. J.* (EB2015)
55. **Shi J. Liu** (2015) Coronary Blood Flow is Reduced by Doxorubicin: a Ultrasound Microscopic Study. *FASEB. J.* (EB2015)
56. **Shi J. Liu** (2015) Contractile Properties of Adult Ventricular Myocyte in Long-term Culture. *FASEB. J* (EB2015)
57. Maria Theresa E Montales, Frank A Simmen, Stepan B Melnyk, **Shi Liu**, Yunying L Liu, and Rosalia CM Simmen (2015) Early Metabolic History Influences Treatment Response to Doxorubicin of Mammary Tumor-Bearing Adult Female Wnt1-Tg Mice. (END 2015)
58. **Shi J. Liu**, Guangrong Zheng, Peter A. Crooks (2016) F10 Fraction of *Terminalia arjuna* (*TA*) Bark Aqueous Extract Exerts A Positive Inotropic Effect on Adult Ventricular Myocytes. *Planta Med* 2016:82 –PB27.

***Invited Seminar:***

- Intracellular pH Regulation in Cardiac Myocytes. 1991. In Department of Medicine, Univ. of Arkansas for Medical Sciences (UAMS).
- Cl<sup>-</sup> Conductance in Cardiac Myocytes. 1992. In Department of Medicine, UAMS.
- Regulation of Cardiac L-type Ca channels by Interleukin-1 $\beta$ . 1994. In Department of Physiology and Biophysics, UAMS.
- Regulation of Cardiac L-type Ca Channels by Interleukin-1 $\beta$ . 1995. In Department of Anatomy, UAMS.
- Potassium Channels and Cardiac Arrhythmias. 1996. In Cardiac Grand Round of Cardiology Division, Department of Medicine, UAMS.
- Signal transduction pathways for Interleukin-1 $\alpha$  in Cardiac Ventricular Myocytes. 1997. In Department of Medicine, UAMS.
- Modulation of cardiac L-type Ca<sup>2+</sup> channel current by cytokines. 1998. American Health Assistant Foundation: National Heart Association. San Diego, CA.
- Co-chaired "Cell Death, Mitochondria and Apoptosis" (Poster Discussion Section). 2004. Experimental Biology, Washington, DC.
- Senescence and Remodeling of Adult Ventricular Myocyte (AVM) in Primary Culture (2009). Experimental Biology, New Orleans, LA.
- Signaling of Pro-inflammatory Cytokines in Adult Ventricular Myocytes. Zhongshan School of Medicine, Sun-YatSen University, Guangzhou, Guangdong, PROC (Oct 27, 2009).
- How much do we know the heart: Heart and pro-inflammatory cytokines. Department of Pharmacology, School of Medicine and Pharmaceutics, Jiangnan University. Wuxi, Jiangsu, People's Republic of China (June 25, 2012).
- Naturoceutics in cardiac research. Institute of Nuclear Medicine, Wuxi, Jiangsu, PROC (June 25, 2012).
- Cardiac actions of *Terminalia arjuna* bark. Department of Pharmacology/toxicology, School of Pharmacy, University of Missouri, Kansas City, MO (Feb. 4, 2016)

***External Grant Support:*****Pending**

Source: NIH R21 (resubmission)

**CURRICULUM VITAE**

**S. Jesse Liu -11**

Title: Cardioprotection of aqueous extract of *Terminalia arjuna* bark in cancer chemotherapy  
Role and effort: **PI.** 30%      Period: 9/01/16 - 8/30/18