

**Summary: Jan–Feb 2007 professional activities (Culver, Du, Ren, Sreejayan & Shen labs)****A. Research paper in press or in print (alphabetically by last name of 1<sup>st</sup> author):**

1. Dong F\*, Yang X\*, Sreejayan N, Ren J. Chromium (D-phenylalanine)<sub>3</sub> improves obesity-induced cardiac contractile defect in *ob/ob* mice. *Obesity Res.* in press. (\*equal first authorship) (IF=4.00)
2. Du M, Shen QW, Zhu MJ, Ford SP. Leucine stimulates mTOR signalling in C2C12 myoblast cells through inhibition of AMP-activated protein kinase. *Journal of Animal Science* in press.
3. Fang CX, Yang X, Sreejayan N, Ren J. Acetaldehyde promotes rapamycin-dependent activation of p70S6K and glucose uptake despite inhibition of Akt and mTOR in dopaminergic SH-SY5Y human neuroblastoma cells. *Exp. Neurol.* 203:196-204, 2007 (IF=3.78).
4. Jay MA, Ren J. Peroxisome proliferator-activated receptor (PPAR) in metabolic syndrome. *Curr Diabetes Rev.* 3: 33-39, 2007 (IF=2.44).
5. Li Q, Ren J. Cardiac overexpression of metallothionein attenuates chronic alcohol intake-induced cardiomyocyte contractile dysfunction. *Cardiovasc. Toxicol.* 6: 173-182, 2006 (not listed previously).
6. Li Q, Ren J. Chronic alcohol consumption reduces activation of mammalian target of rapamycin (mTOR) and ribosomal p70S6 kinase in cerebral cortex. *Exp. Neurol.* in press (IF=3.78).
7. Li Q, Wu S, Li SY, Lopez FL, Du M, Kajstura J, Anversa P, Ren J. Cardiac specific overexpression of insulin-like growth factor-1 (IGF-1) attenuates aging-associated cardiac diastolic contractile dysfunction and protein damage. *Am J Physiol: Heart Circ Physiol* in press (IF=3.56).
8. Li SY, Sigmon VK, Babcock SA, Ren J. Advanced glycation endproducts induce ROS accumulation, apoptosis, MAP kinase activation and nuclear O-glcNAcylation in human cardiac myocytes. *Life Sci* 80: 1051-1056, 2007 (IF=2.51).
9. Relling DP, Esberg LB, Johnson WT, Murphy EJ, Carlson EC, Saari JT, Lukaski HC, Ren J. Dietary interaction of high fat and marginal copper deficiency on cardiac contractile function. *Obesity Res.* in press (IF=4.00).
10. Ren J, Li Q, Wu S, Li SY, Babcock SA. Cardiac overexpression of antioxidant catalase attenuates aging-induced cardiomyocyte relaxation dysfunction. *Mech. Ageing Dev.* 128: 276-285, 2007 (IF=2.81).
11. Ren J. Influence of gender on oxidative stress, lipid peroxidation, protein damage and apoptosis in hearts and brains from spontaneously hypertensive rats. *Clin. Exp. Pharm. Physiol.* 34:432-438, 2007 (IF=1.44).
12. Shen QW, Underwood KR, Means WJ, McCormick RJ, Du M. Halothane gene, energy metabolism, AMP-activated protein kinase, and glycolysis in postmortem pig longissimus dorsi muscle. *Journal of Animal Science* in press.
13. Wu S, Li Q, Du M, Li SY, Ren J. Cardiac overexpression of catalase prolongs lifespan, attenuates aging-induced cardiomyocyte contractile dysfunction and protein damage. *Clin. Exp. Pharm. Physiol.* 34:81-87, 2007 (IF=1.44).
14. Zhang QJ, Li QX, Zhang HF, Zhang KR, Guo WY, Wang HC, Fan M, Zhou Z, Cheng HP, Ren J, Gao F. Aerobic exercise sensitizes myocardial contractile response to insulin - Role of Akt-dependent eNOS activation. *Cardiovasc Res.* accepted (IF=5.28).
15. Zhu MJ, Du M, Hess BW, Means WJ, Nathanielsz PW, Ford SP. Maternal nutrient restriction upregulates growth signaling pathways in the cotyledonary artery of cow placentomes. *Placenta* in press.

**B. Research paper submitted in Jan-Feb 2007 (alphabetically by last name of 1<sup>st</sup> author):**

1. Dong F, Ren J. Friend or foe: the debate continues for the role of leptin in obesity-associated heart dysfunction. *Curr Diabetes Rev.* in review.
2. Li J, Zhang HF, Wu F, Nan Y, Ma J, Guo WY, Wang HC, Ren J, Das UN, Gao F. Insulin inhibits TNF- $\alpha$  induction in myocardial ischemia/reperfusion: Role of Akt and eNOS phosphorylation. *Diabetologia* in review.

3. Li LL, Ma XL, Ran JX, Sun XF, Xu LM, Ren J, Mao XM. Genetic polymorphism of peroxisome proliferator-activated receptor- $\gamma$ 2 pro12Ala on ethnic susceptibility to diabetes in Uygurs, Kazaks and Hans subjects. *Acta Pharmacologica Sinica* in review.
4. Li Q, Ren J. Influence of cardiac specific overexpression of insulin-like growth factor-1 on life span and aging-associated changes in cardiac intracellular  $Ca^{2+}$  homeostasis, protein damage and apoptotic protein expression. *Aging Cell* in review.
5. Li Q, Yang X, Sreejayan N, Ren J. IGF-1 deficiency prolongs survival and antagonizes paraquat-induced cardiomyocyte dysfunction: Role of oxidative stress. *FASEB J.* in review.
6. Ren J, Li LL. Management of cardiometabolic risk with peroxisome proliferator-activated receptor (PPAR) ligand. *J. Clin. Pharmacol.* in review.
7. Sun JB, Duan JH, Dai SL, Ren J, Zhang YD, Jiang W, Li Y. In vitro and in vivo tumor suppressant property of doxorubicin loaded with bacterial magnetosomes, the magnetic nanoparticles as drug carriers isolated from *Magnetospirillum gryphiswaldense* MSR-1. *Clin. Cancer Res.* in review.
8. Turdi S, Li Q, Lopez FL, Ren J. Catalase alleviates cardiomyocyte dysfunction in diabetes: Role of Akt, forkhead transcriptional factor and silence information regulator 2. *Life Sci* in review.
9. Wang N, Dong A, Radosz M, Shen Y. Degradable thermoresponsive polyethylene glycol. *J. Biomed Materials Res.* in review.
10. Zhan Y, Van Kirk EA, Murdoch W, Radosz M, Shen Y. Multifunctioning pH-responsive nanoparticles from hierarchical self-assembly of polymer brush for cancer chemotherapy. *Biomaterials* in review.

### **C. Meeting presentation and abstract submitted in Jan – Feb 2007.**

- Du M.**, Bing Han, Mei Zhu, Peter W. Nathanielsz, Stephen P. Ford. Insulin signaling and AMP-activated protein kinase are down-regulated in skeletal muscle of overnourished, obese pregnant sheep. Annual Meeting of the Society for the Study of Reproduction. San Antonio, Texas, July 2007.
- Du M.**, Bing Han, Mei Zhu, Peter W. Nathanielsz, Stephen P. Ford. Down-regulation of AMP-activated protein kinase in fetal muscle of obese, overnourished pregnant sheep. Annual Meeting of the Society for the Study of Reproduction. San Antonio, Texas, July 21 to July 25, 2007.
- Du M:** Bing Han, Changwei Ma, M. J. Zhu, Qingwu W. Shen, and M. Du. Leucine supplementation mitigates atrophy of non-weight-bearing skeletal muscle in rats. Experimental Biology Annual Meeting, Washington DC, April 28-May 2, 2007.
- Du M:** Maternal nutrition and fetal skeletal muscle development. Aspen Perinatal Biology Symposium, The Given Institute, Aspen, Colorado, USA, August 25 to 28, 2007.
- Du M:** Price PL, M. Du, S.I. Paisley, V. Nayigihugu, J.D. Hess, and B.W. Hess. Beef cow performance in response to early through mid-gestational nutrient restriction and provision of supplementary ruminally undegradable protein. Western Section ASAS Meeting, Moscow, Idaho, June 20-22, 2007.
- Ren J:** Insulin, insulin resistance and cardiac excitation-contraction coupling. International Society of Biophysics Conference on Biomembrane; invited speaker, Wuhan, P.R.China, October 2007.
- Ren J:** Metabolic syndrome and heart dysfunction: problems and perspectives. Chinese Cardiovascular Society Meeting, Yichang, Hubei, P.R.China, July 22-25, 2007.
- Ren J:** Systemic inflammation response syndrome and heart failure. The 6<sup>th</sup> Conference for Cardiovascular Sciences across the Strait; Invited speaker, Urumuqi, P.R.China, July 28-31, 2007.
- Ren J:** The role of oxidative stress in diabetic cardiomyopathy. European Association for the Study of Diabetes; Faculty and invited speaker, Amsterdam, Netherlands, Sept 18-21, 2007.
- Shen QW,** Ren J, Du M.  $Ca^{2+}$ /calmodulin-dependent protein kinase kinases are mainly responsible for AMP-activated protein kinase activation by  $\alpha$ -lipoic acid in C2C12 myotubes. Experimental Biology Annual Meeting, Washington DC, April 28-May 2, 2007.
- Underwood KR,** Means WJ, Du M. Caspase-3 is not activated in postmortem beef and lamb muscle. Midwest Society of Animal Science Annual Meeting, Des Moines, Iowa, March 19-21, 2007.
- Zhu MJ,** Du M, Hess BW, Nathanielsz PW, Ford SP. Localization of key growth signaling proteins in placentomes of overfed ewes. Society for Gynecologic Investigation, Reno, Nevada, March 14, 2007.

**Zhu MJ**, S.P. Ford, and M. Du. Androgen enhances both Akt/mTOR and MAPK signaling in C2C12 myoblast cells. Experimental Biology Annual Meeting, Washington DC, April 28-May 2, 2007.

American Heart Association Scientific session 2007 (11/4-7, Orlando, FL), abstract due date 6/1/07  
Visit: <http://www.americanheart.org/presenter.jhtml?identifier=3044219> for more information.

#### **D. Research Proposal submitted in Jan – Feb 2007**

**Du M:** AMP-Activated Protein Kinase in Insulin Signaling and Adipogenesis of Fetal Skeletal Muscle due to Maternal Obesity and Over-Nutrition. American Diabetes Association Innovative Grant

**Sreejayan N:** Inhibiting Breast Cancer Cell Proliferation by “Foxing” FOXO via Targeting SIRT1. DoD Congressionally Directed Medical Research Programs (CDMRP), \$ 105, 375, 07/01/06-07/30/08

#### **Ren J:**

1. American Heart Association: Role of Akt and Foxo transcription factor in the pathogenesis of diabetic cardiomyopathy and antioxidant treatment (revision). PI, \$198,000 (7/07-6/10)
2. American Diabetes Association: Role of Akt and forkhead transcription factor in cardiac dysfunction under insulin resistance and type 2 diabetes (revision), PI, \$300,000 (7/1/2007-6/30/2010)
3. Department of Defense Breast Cancer Research Program: Acetaldehyde in alcoholism-associated breast cancer risk– mechanisms, consequences and therapeutics. PI, \$107,250 (7/07-6/08)
4. NIH: Role of oxidative stress and antioxidant in cardiac dysfunction under aging (revision). PI, \$1,251,125 (1/2008-12/2012)
5. Chinese National Science Foundation (plan B for overseas): IGF-1 and eNOS uncoupling in diabetic heart disease. Co-PI with Prof. Feng Gao (4<sup>th</sup> Military Medical Univ), YMB1,500,000 (4/08-3/12).

**Shen Y:** Shen, Murdoch, NIH R03- Active Polymer-Drug Conjugates Overcoming Drug Resistance for Cancer Chemotherapy, submitted

**Dong F:** Novel Chromium Complex alleviates Cardiac Dysfunction in Type I Diabetes, American Heart Association, \$ 83,044, 01/07/2007-06/30/2009 (sponsor: Sreejayan N).

#### **E. C-CRAM activities, news & other laboratory issues:**

- (1). The next C-CRAM research award will be announced on July 1, 2007.
- (2). The 2007 EPSCoR spring student award to [Chris Peryam](#) “The Relationship of Brain-Derived Neurotrophic Factor to Behavior in an Animal Model of Depression” and [Kayla Luhrs](#) “Behavioral and Pathological Changes in a Biogenic (APPswe+PS1/DeltaE9) Mouse Model of Alzheimer’s Disease”. Both [Chris](#) and [Kayla](#) work with Drs. [Culver](#) and [Susan Zhang](#) on these projects.
- (3). The 2007 EPSCoR summer student research application submitted: [Robbie Schamber](#) “Impact of Methamphetamine on Cardiac Contractile Function” and [Anna Huff](#) “Aldehyde Dehydrogenase (ALDH) and Alzheimer's disease, is there a link?” with Dr. Ren serving as the sponsor/advisor.
- (4). [Machender Reddy Kandadi](#), an exchange-student from Manipal University (India) joined Sree’s lab in January, 2007. Machender is registered for his Ph.D. in the Manipal University and his advisor is Dr. MK Unnikrishnan.
- (5). Dr. [Ajaya Kumar Sankara Warriar](#), has completed his 6 months fellowship with Sree (supported by Interhealth Nutraceuticals) and will take a new position in Chemistry Department. Good luck to Ajay.
- (6). Visiting seminar speaker on 1/18/2007– Dr. [Xin-sheng Deng](#) from University of Colorado Health Sciences Center – “*Formation of ethyl nitrite in-vivo after ethanol administration and its effects on neurons*”. With the 2 faculty search undergoing in pharmaceutical sciences, more research seminars are coming, stay toned.
- (7). NHL’s hockey playoff starts in mid April, those who are interested please contact Jun Ren. We have been doing these since 2004. Bruce and Jun won the SOP’s super bowl pool this month.
- (8). Deadline for abstract submission of CHS research day (on April 27) is Friday, [March 9th, 2007](#).

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