

Issue 2, October 2010

CCRAM Newsletter



Center for Cardiovascular Research and Alternative Medicine, University of Wyoming

Dear Colleagues,

Here is your second issue of CCRAM newsletter for 2010. CCRAM researchers published 27 papers during the period April-September 2010 and presented their work at the InBRE (Grand Teton, Washington DC) and IFT (Chicago) meetings. Dr. Min Du received R01 funding by the NIH. Drs. Zhang and Kandadi were awarded their PhD degree. Alex Xu was nominated for the UW Graduate Council. Congratulations!

-Editor

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Research Papers in Press/Print

1. **Ceylan-Isik AF***, **McBride SM***, Ren J. Sex difference in alcoholism: Who is at a greater risk for development of alcoholic complication? *Life Sci.* 87: 133 – 138. 2010. *Equal first authorship.
2. **Ceylan-Isik AF**, **Sreejayan, N**, **Ren J**, Endoplasmic reticulum chaperon tauroursodeoxycholic acid alleviates obesity-induced myocardial contractile dysfunction. *J. Mol. Cell. Cardiol.* acceptance pending.
3. **Dodson MV**, **Hausman GJ**, **Guan LL**, **Du M**, **Rasmussen TP**, **Poulos SP**, **Mir P**, **Bergen WG**, **Fernyhough ME**, **McFarland DC**, **Rhoads RP**, **Soret B**, **Reecy JM**, **Velleman SG**, **Jiang Z**. Skeletal muscle stem cells from animals I. Basic cell biology. *Int. J. Biol. Sci.* 6:465-474.
4. **Ge W***, **Li Q***, **Turdi S**, **Wang XM**, **Ren J**. Deficiency of insulin-like growth factor 1 (IGF-1) reduces vulnerability to chronic alcoholism-induced cardiomyocyte dysfunction. *J. Cell. Mol. Med.* in press. *Equal first authorship.
5. **Ge W**, **Zhang Y**, **Han X**, **Ren J**. Cardiac-specific overexpression of catalase attenuates paraquat-induced myocardial geometric and contractile alteration: Role of ER stress. *Free Rad Biol. Med.* acceptance pending.
6. **Guo R**, **Scott GI**, **Ren J**. Involvement of AMPK in alcohol dehydrogenase accentuated myocardial dysfunction following acute ethanol challenge in mice. *PLoS ONE* 5: e11268, 2010.
7. **Han X**, **Ren J**. Caloric restriction and heart function: Is there a sensible link? *Acta Pharmacologica Sinica* 31: 1111-1117, 2010.
8. **Huang Y**, **Yan X**, **Zhao JX**, **Zhu MJ**, **McCormick RJ**, **Ford SP**, **Nathanielsz PW**, **Ren J***, **Du M***. Maternal obesity induces fibrosis in fetal myocardium of sheep. *Am. J. Physiol. Endo. Metab.* in press. * Corresponding author.
9. **Huang Y**, **Yan X**, **Zhu MJ**, **McCormick RJ**, **Ford SP**, **Nathanielsz PW**, **Du M**. Enhanced transforming growth factor b (TGF-b) signaling and fibrogenesis in fetal skeletal muscle of obese sheep at late gestation. *Am. J. Physiol. –Endocrinol. Metab.* 298: E1254-E1260, 2010
10. **Kandadi MR**, **Hua Y**, **Ma H**, **Li Q**, **Kuo SR**, **Frankel AE**, **Ren J**. Anthrax lethal toxin suppresses murine cardiomyocyte contractile function and intracellular Ca²⁺ handling via a NADPH oxidase-dependent mechanism. *PLoS ONE* in press.
11. **Kandadi MR**, **Stratton MS**, **Ren J**. The role of Src homology 2 containing protein tyrosine phosphatase 2 in vascular smooth muscle cell migration and proliferation. *Acta Pharmacologica Sinica* in press.
12. **Kandadi MR**, **Unnikrishnan MK**, **Warrier AKS**, **Du M**, **Ren J**, **Sreejayan N**. Chromium (D-Phenylalanine)₃ alleviates high fat-induced insulin resistance and lipid abnormalities. *J. Inorg. Biochem.* in press.
13. **Li F**, **Yin J**, **Ni J**, **Liu L**, **Zhang H**, **Du M**. Chloride intracellular channel 5 modulates adipocyte accumulation in skeletal muscle by inhibiting preadipocytes differentiation. *J. Cell. Biochem.* 110: 1013-1021, 2010
14. **Li DL**, **Liu JJ**, **Liu BH**, **Hu H**, **Sun L**, **Miao Y**, **Xu HF**, **Yu XJ**, **Ma X**, **Ren J**, **Zang WJ**. Acetylcholine inhibits hypoxia-induced tumor necrosis factor- α production via regulation of MAPKs phosphorylation in cardiomyocytes. *J. Cell. Physiol.* in press.
15. **Ma H**, **Guo R**, **Yu L**, **Zhang Y**, **Ren J**. Aldehyde dehydrogenase 2 (ALDH2) rescues myocardial ischemia/reperfusion injury: Role of autophagy paradox and toxic aldehyde. *Eur. Heart J.* in press.

Twenty seven research articles have been published or accepted for publication during the period April through September 2010.

Research Papers in Press/Print

16. **Ma H, Wang JY, Thomas DP, Tong C, Leng L, Wang WK, Merk M, Zierow S, Bernhagen J, Ren J, Bucala R, Li J.** Impaired macrophage migration inhibitory factor (MIF)-AMPK activation and ischemic recovery in the senescent heart. *Circulation* 122: 282 – 292, 2010.
17. **Ma H, Yu L, Byra EA, Hu N, Kitagawa K, Nakayama KI, Kawamoto T, Ren J.** Aldehyde dehydrogenase 2 knockout accentuates ethanol-induced cardiac depression: Role of protein phosphatases. *J. Mol. Cell. Cardiol.* 49: 322 – 329, 2010.
18. **Pei Z, Meng R, Li G, Yan G, Xu C, Zhuang Z, Ren J*, Wu Z*.** Angiotensin-(1-7) ameliorates myocardial remodeling and interstitial fibrosis in spontaneous hypertension: Role of MMPs/TIMPs. *Toxicol. Lett.* in press.*Corresponding author
19. **Ren J, Pulakat L,** Whaley-Connell A, Sowers JR. Mitochondrial biogenesis in metabolic syndrome and cardiovascular disease. *J. Mol. Med.* 88: 993-1001, 2010.
20. **Si R, Tao L, Zhang HF, Yu QJ, Zhang R, Lv AL, Zhou N, Cao F, Guo WY, Ren J, Wang HC, Gao F.** Survivin: A novel player in insulin cardioprotection against myocardial ischemia/reperfusion injury. *J. Mol. Cell. Cardiol.* in press.
21. **Teng M, Dang YM, Zhang JP, Zhang Q, Fang YD, Ren J, Huang YS.** Microtubular stability affects cardiomyocyte glycolysis by HIF-1 α expression and endonuclear aggregation during early hypoxia stage. *Am. J. Physiol. Heart Circ. Physiol.* 298: H1919-1931, 2010.
22. **Turdi S, Fan XJ, Li J, Zhao J, Huff AF, Du M, Ren J.** AMP-activated protein kinase deficiency exacerbates aging-induced myocardial contractile dysfunction. *Aging Cell* 9: 592 – 596, 2010.
23. **Underwood KR, Tong JF, Price PL, Roberts AJ, Grings EE, Hess W, Means WJ, Du M ,** Gestational nutrition affects growth, adipose tissue deposition, and tenderness in steers. *Meat Sci* 86:588-593, 2010
24. **Wang JY, Ma H, Tong C, Zhang HY, Lawlis GB, Li Y, Zang MW, Ren J, Nijland MJ, Ford SP, Nathanielsz PW, Li J.** Overnutrition and maternal obesity in sheep pregnancy alters the JNK-IRS-1 signaling cascades and cardiac function in the fetal heart. *FASEB J.* 24: 2066-2076, 2010.
25. **Wang L, Tao Y, Xie Z, Ran X, Zhang M, Wang Y, Luo X, Hu M, Gen W, Wufuer H, Li L, Ren J, Mao X.** Prevalence of metabolic syndrome, insulin resistance, impaired fasting blood glucose and dyslipidemia in Uygur and Kazak populations. *J. Clin. Hyperten.* in press.
26. **Xiao S, Zhang WG, Yang Y, Ma CW, Ahn DU, Li X, Lei JK, Du M.** Changes of hormone-sensitive lipase (HSL), adipose tissue triglyceride lipase (ATGL) and free fatty acids in subcutaneous adipose tissues throughout the ripening process of dry-cured ham. *Food Chem.* 121: 191-195, 2010
27. **Zhu MJ, Ma Y, Long NJ, Du M, Ford SP** Maternal obesity markedly increases placental fatty acid transporter expression and fetal blood triglycerides at mid-gestation in the ewe. *Am. J. Physiol– Reg. Integ. Comp. Physiol.* In press

Dr. Du Receives ROI Funding

Du, M. (PI), *NIH* (1R01HD067449). AMP-activated protein kinase in cell differentiation during muscle development affected by maternal obesity. \$1,174,450. (2010/09-2015/12).

CCRAM Research Activity

Research Papers in Review/Revision

1. **Dong F, Skinner DS, Wang Q, Albertson AJ, Talbott H, Wu TJ, Glucksman MJ, and Ren J.** The Heart: A novel GnRH target. *Endocrinology*, in review
2. **Ge W, Ren J,** Aldehyde dehydrogenase 2 (ALDH2) protects against acute ethanol challenge-induced cardiomyocyte contractile dysfunction through inhibition of autophagy.
3. **Hua Y*, Zhang Y*, Nunn JM, Ren J.** Chronic Akt activation accentuates aging-induced cardiac hypertrophy and myocardial contractile dysfunction: Role of autophagy. *Eur. Heart J.*
4. **Hua Y, Zhang Y, Ren J.** IGF-1 Deficiency Resists Cardiac Hypertrophy and Myocardial Contractile Dysfunction: Role of microRNA-1 and microRNA-133a. Hypertension in review.
5. **Obulkasim M, Turdi A, Amat N, Haxim M, Eziz R, Hajia H, Li L, Chen X, Upur H, Ren J.** Neuro-endocrine-immune disorder in type-2 diabetic patients with retinopathy. *Diabetes Care* in review.
6. **Roe ND, Thomas DP, Ren J.** Inhibition of NADPH oxidase alleviates experimental diabetes-induced myocardial contractile dysfunction. *Diab. Obes. Metab.* in review.
7. **Turdi S*, Ge W*, Ji L, Kato K, Gao F, Bradley KM, Ren J.** Maternal high fat diet exposure predisposes postnatal high fat diet-induced myocardial risk in offspring through IRS-1 serine phosphorylation and mitochondrial anomalies. *JACC*
8. **Turdi S, Huff AF, Ren J.** Deficiency in AMP-activated protein kinase exaggerates high fat diet-induced cardiac hypertrophy and contractile dysfunction. *J. Mol. Cell. Cardiol.* in revision.
9. **Zhang XC, Ren J.** Molecular mechanism of methamphetamine-induced neurotoxicity: Musing on the not-so-funny side. *Toxicol. Lett.* in review.
10. **Zhang Y, Ren J.** Activation of Akt rescues endoplasmic reticulum stress-impaired murine cardiomyocyte contractile function via glycogen synthase kinase-3 β -mediated suppression of mitochondrial permeation pore opening. *Free Rad. Biol. Med.* in review

Meeting, Abstract and Invited Talks

1. **Xuefeng Han,** INBRE Retreat presentation (September 16-18, Grand Teton, WY)
2. **Nate Roe,** INBRE Retreat presentation (September 16-18, Grand Teton, WY)
3. **Nick** – INBRE Retreat poster (September 16-18, Grand Teton, WY)
4. **Rui and Subat (Machender)** – INBRE Natl. Meeting (June 16-18, Washington DC)
5. **Sreejayan, N,** IFT 2010 (July 17-20, Chicago)

PhD Degree Awarded



Yingmie (Megan) Zhang



Machender R Kandadi

Yingmie (Megan) Zhang, (left) an exchange PhD student from the Fourth Military Medical University in China, successfully defended her PhD dissertation earlier this summer. Zhang joined the CCRAM in fall 2009. She is a cardiologist-physician scientist focusing on cardiology care in diabetes.

Machender Reddy Kandadi, Visiting PhD student from Manipal University India successfully defended his PhD dissertation this summer. Kandadi joined CCRAM at the UW School of Pharmacy in Feb 2007.

Congratulations to Drs. Zhang and Kandadi!

Alex (Xihui) Xu Elected to Serve on UW Graduate Council



Alex (Xihui) Xu

Alex Xu has been elected as a graduate student member for the 2010-11 UW Graduate Council. Alex joined . Xu is one of the new Biomedical Sciences PhD candidate in the School of Pharmacy.

Alex Xu's advisor is Jun Ren, MD, PhD, FAHA, Associate Dean for Research for the College of Health Sciences, Professor of pharmacology and the Director of Wyoming InBRE. program.

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Center for Cardiovascular Research and Alternative Medicine

University of Wyoming, School of Pharmacy
1000 E. University Avenue
Laramie, WY 82072
Ph: (307)766-6138
Email: sreejay@uwyo.edu
Url: <http://www.uwyo.edu/pharmacy/info.asp?>