

# Curriculum Vitae

## **Personal Details**

**Name:** Aijun Qiao, PhD

**Gender:** Male

**Date of Birth:** January/15/1981

**Marital Status:** Married

**Address:**

Department of Biomedical Engineering

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## **Positions and Employment**

**Assistant Professor, Department of Biomedical Engineering, The University of Alabama at Birmingham, Birmingham, AL, 06/2017-Present**

## **Training and Education**

- ◆ **Postdoctoral of Molecular Oncology and Biomarkers Program of Cancer Center, 10.2012 -05.2017**

Advised by Prof. Nahid F. Mivechi

Molecular Oncology and Biomarkers Program, Augusta University (Augusta, USA)

**Research field: Role of heat shock transcription factors and molecular chaperones in pathways involved in metabolic-related disease, such as diabetes, obesity and tumor.**

- ◆ **Postdoctoral of Molecular Pharmacology and Biochemistry, 2011.10-2012.10**

Advised by Associate Prof. Hossein Ardehali

Feinberg Cardiovascular Research Institute, Northwestern University School of Medicine (Chicago, USA)

**Research field: MicroRNA and heme metabolism in the development of metabolic disease, for example, cardiovascular disease, diabetes, obesity and**

### **Nonalcoholic fatty liver disease.**

#### ◆ **PhD. of Biochemistry and Molecular Biology, 2008 - 2011**

Advised by Prof. Fude Fang, Yongsheng Chang and Junwu Zhang

Institute of Basic Medical Sciences, Chinese Academy of Medical Sciences and Peking Union Medical College (CAMS & PUMC), Tsinghua University (Beijing, China)

**Research field: Novel Proteins and their function in type 2 diabetes, obesity and Nonalcoholic fatty liver disease.**

#### ◆ **Master degree of Animal molecular genetics and breeding, 2004 - 2007**

Advised by Prof. Daquan Li

Department of Animal Science, Shihezi University (Shihezi, China)

**Research field: The research on cross-sterility mechanisms of chicken and quail.**

#### ◆ **Bachelor degree of Animal Science, 2000 - 2004**

Advised by Prof. Youzhang Zhao

Department of Animal Science, Gansu Agriculture University (Lanzhou, China)

**Research field: Animal genetics and breeding.**

### **Professional Memberships**

2012 -Present      American Heart Association

2010- Present      Biophysical Society

2014- Present      American Association for the Advancement of Science

### **Review Responsibilities**

Plos One, Hormone and Metabolic Research, Medicine, American Journal of

Cardiovascular Disease, The Journal of Visualized Experiments, et al.

### **Teaching Responsibilities**

2005-2007, Shihezi University, Teaching undergraduate students <<Animal Genetics Experiments>>

### **Awards and Honors**

2013              National Excellent Doctoral Dissertation Award nomination of CAMS &PUMC

(One of the three)

2012	Excellent Doctoral Dissertation of CAMS & PUMC (One of the ten)
2011	Excellent Graduate of National Key Laboratory of Medical Molecular Biology
2010	First-Class Graduate Scholarship of CAMS & PUMC
2010	Excellent Graduate Student of CAMS & PUMC
2010	Research Assistant Scholarship of CAMS & PUMC
2009	Third-Class Graduate Scholarship of CAMS & PUMC
2008	Research Assistant Scholarship of CAMS & PUMC
2007	Excellent Master Dissertation of Xinjiang Province
2007	Excellent Master Dissertation of Shihezi University
2007	Excellent Graduate of Shihezi University
2006	Excellent Graduate of Shihezi University
2006	Excellent Graduate of metaphase check of Shihezi University
2003	Excellent Undergraduate of Gansu Agriculture University
2003	Husbandry and Veterinary Scholarship of Lanzhou Zheng-Da Company
2001-2004	Second-Class Scholarship of Gansu Agriculture University

### **Research Activity Statement**

**Cardiovascular disease (CVD)** is the leading cause of death and remains a major cause of health disparities worldwide. Recent study suggest that **Obesity, Type 2 diabetes (T2D), Non-alcohol fatty liver disease (NAFLD), Dyslipidemia,** and **Insulin resistance**, all of which are components of the metabolic syndrome, could exacerbate the future CVD burden and cause CVD-related death. Thus, my research is to determine mechanisms by which those metabolic syndrome increase risk for CVD and the resulting pathophysiological consequences. I will use traditional approaches including biochemistry, molecular biology, cellular biology and physiology in combination with transgenic or knockout mouse models and new metabolic technologies, such as metabolomics, lipidomics, proteomics, seahorse study, et al.

#### **My current research will mainly focus on following aspects:**

- ◆ Study on the metabolic signaling networks between heart, vascular system, liver, adipose and muscle.
- ◆ Identify novel therapeutic targets for T2D through regulation of gluconeogenesis, glucose

uptake, glycolysis.

- ◆ Identify novel factors for anti-obesity by regulation of adipocyte differentiation, brown fat or “beige” cell thermogenesis.
- ◆ Develop effective therapeutic targets for NAFLD through regulation of lipid synthesis, lipolysis, fatty acid oxidation, autophagy, ER stress, et al.

**The following works are what I have completed:**

- ◆ The role of heat shock transcription factors and molecular chaperones in pathways involved in glucose and lipid metabolism as well as tumorigenesis.
- ◆ miR-210 regulates heme metabolism in cardiomyocytes.
- ◆ The role of mouse PNPLA in glucose and lipid homeostasis in the liver.
- ◆ miR-29a-c decrease fasting blood glucose levels by negatively regulating hepatic gluconeogenesis.
- ◆ The role of post-translational modifications of non-histones in metabolic disease.
- ◆ The Identification and functional of novel transcriptional and excreted factors in in metabolic disease.

## **Publications**

### **Original Articles:**

1. **Aijun Qiao\***, Xiongjie Jin\*, Junfeng Pang, Demetrius Moskophidis, and Nahid F. Mivech. The transcriptional regulator of the chaperone response HSF1 controls hepatic bioenergetics and protein homeostasis. *The Journal of Cell Biology*, 2017, 216(3):723-741. (\***Co-First Author, It Was Selected by Journal as a Spotlight Paper and Highlighted by Another Paper at The Same Issue-<http://jcb.rupress.org/content/early/2017/02/08/jcb.201701093?papetoc>**)
2. Ying Cui, **Aijun Qiao**, Tao Jiao, Huabing Zhang, Yuan Xue, Yongkang Zou, Anfang Cui, Fude Fang, and Yongsheng Chang. The hepatic FOXQ1 transcription factor regulates glucose metabolism in mice. *Diabetologia*, 2016, 59(10):2229-39.
3. **Aijun Qiao**, Arineh Khechaduri, R. Kannan Mutharasan, Rongxue Wu, Varun Nagpal and Hossein Ardehali. MicroRNA-210 Decreases Heme Levels by Targeting Ferrochelatase in Cardiomyocyte. *J Am Heart Assoc*, 2013, 2(2):e000121.
4. Jichao Liang, Changzheng Liu, **Aijun Qiao**, Ying Cui, Huabing Zhang, Anfang Cui, Shutian Zhang, Yanli Yang, Xinhua Xiao, Yong Chen, Fude Fang, Yongsheng Chang. MicroRNA-29a-c decrease fasting blood glucose levels by negatively regulating hepatic gluconeogenesis. *J Hepatol*, 2013, 58(3):535-42.
5. **Aijun Qiao**, Jichao Liang, Yaojun Ke, Chenghong Li, Ying Cui, Lian Shen, Huabing Zhang, Anfang Cui, Xiaojun Liu, Changzheng Liu, Yong Chen, Yi Zhu, Youfei Guan, Fude Fang, Yongsheng Chang. Mouse PNPLA3 Influences Systemic Lipid and Glucose Homeostasis. *Hepatology*, 2011, Aug; 54(2): 509-21.

6. Xiaojun Liu\*, **Aijun Qiao\***, Yaojun Ke, Xingxing Kong, Jichao Liang, Rui Wang, XiaoqingOuyang, Jin Zuo, Yongsheng Chang, Fude fang. FoxO1 Represses LXR $\alpha$ -Mediated Transcriptional Activity of SREBP-1c Promoter in HepG2 Cells. FEBS Lett, 2010, 20(584): 4330-4334. (**Co-First Author**)
7. Liuluan Zhu, Yaojun Ke, Di Shao, Ying Cui, **Aijun Qiao**, Nishith Gupta, Yongsheng Chang and Fude Fang. PPAR $\gamma$  co-activator-1 $\alpha$  co-activates steroidogenic factor 1 to stimulate the synthesis of luteinizing hormone and aldosterone. Biochemical J, 2010, 432(3): 473-483.
8. Di Shao, Yang Liu, Xiaojun Liu, Liuluan Zhu, Ying Cui, Anfang Cui, **Aijun Qiao**, Xingxing Kong, Yong Liu, Quan Chen, Nishith Gupta, Fude Fang, Yongsheng Chang. PGC-1 beta-regulated mitochondrial biogenesis and function in myotubes is mediated by NRF-1 and ERR alpha. Mitochondrion, 2010, 5(10): 516-527.
9. **Aijun Qiao**, Fude Fang, Yongsheng Chang. The adenovirus construction and identification of expression and interference of PNPLA3 gene. Basic & Clinical Medicine, 2011, 31(5): 485-489. (**In Chinese**)
10. Xiaojun Liu, Xingxing Kong, Rui Wang, Di Shao, **Aijun Qiao**, Yongsheng Chang, Fude Fang. Construction Of pGL3-Basic-SREBP-1c- Promoter Reporter Gene Vector and Detection of Its Function. Basic & Clinical Medicine, 2009, 29 (5): 495-498. (**In Chinese**)
11. Herong Liao, Yan Li, Xiaoling Guo, **Aijun Qiao**, Wenxia Ma, Zongsheng Zhao, Xiaofeng Zhao, Daquan Li, Ningying Xu. Expression of ER, Bcl-2 and P53 mRNA in Early Hybrid Embryos of Chicken-Quail. Hereditas, 2008, 30(7): 907-912. (**In Chinese**)
12. **Aijun Qiao**, Daquan Li, Wenxia Ma, Herong Liao, Yan Li, Zongsheng Zhao. The Expressional Differences and Developmental Changes of Bcl-2, P53 Gene in Early Embryos of Generic Hybrids of Chicken-Quail. Scientia Agricultura Sinica, 2008, 41(5): 1497-1502. (**In Chinese**)
13. **Aijun Qiao**, Wenxia Ma, Daquan Li, Qingmei Meng. The Sex Identification of Earlier Embryos from Generic Hybrids of Chicken-Quail by Wpkci. Agricultural Sciences in China, 2008, 7(4): 497-501.
14. **Aijun Qiao**, Wenxia Ma, Daquan Li, Qingmei Meng. The Sex Identification of Earlier Embryos from Generic Hybrids of Chicken-Quail by Wpkci. Scientia Agricultura Sinica, 2008, 41(3): 841-845. (**In Chinese**)
15. Yan Li\*, **Aijun Qiao\***, Wenxia Ma, Herong Liao, Zongsheng Zhao, Daquan Li. Effect and Different Expression Of ER Gene In Early Embryos Of Generic Hybrids Of Chicken-Quail. Acta Veterinaria Et Zootechnica Sinica, 2007, 38(12):1311-1315. (**Co-First Author, In Chinese**)
16. Wenxia Ma, Xiaoliang Pan, **Aijun Qiao**, Kedong Qian, Wenyan Shi. Effect of Iron on Iron Content and Gene Expression of Transferrin Receptor mRNA in Mice Livers. Chinese Journal of Animal Nutrition, 2007, 19 (2):188-192. (**In Chinese**)
17. Wenxia Ma, **Aijun Qiao**, Xiaoliang Pan, Kedong Qian, Wenyan Shi. Effect of Iron on LF Gene Expression of Mice Mammary Gland. Chinese Journal of Animal Nutrition, 2007, 19 (1):66-70. (**In Chinese**)
18. Qingmei Meng, Yongqiang Sun, Daquan Li, **Aijun Qiao**. Genetic Diversity Analysis of Korean Quail Using Microsatellite DNA Markers. Fujian Journal of Animal Husbandry and Veterinary medicine, 2007, 29 (1):1-2. (**In Chinese**)

**Manuscripts in Prepared:**

19. **Aijun Qiao\***, Xiongjie Jin\*, Demetrius Moskophidis, and Nahid F. Mivech. Loss of transcriptional factor HSF1 in mouse adipose tissue protect from obesity through activation of thermogenesis. (\***Co-First Author**)

#### **Reviews:**

20. **Aijun Qiao**, Jin Zuo, Xiaojun Liu, Di Shao, Liuluan Zhu, Anfang Cui, Xingxing Kong, Fude Fang, Yongsheng Chang. Research Advances in Sirt1. Acta Acad Med Sin, 2009, 31 (6): 782-785. (**In Chinese**)
21. Di Shao, Anfang Cui, Liuluan Zhu, **Aijun Qiao**, Xingxing Kong, Xiaojun Liu, Yongsheng Chang, Fude Fang. Current Situation Researching Of Methylation in Tumor. Acta Acad Med Sin, 2009, 31 (6): 786-789. (**In Chinese**)
22. **Aijun Qiao**, Qinghe guo, Daquan Li, Herong Liao, Zongsheng Zhao. Research Advances of apoptosis-related factor Bcl2 and P53 in chicken. Shanghai Journal of Animal Husbandry and Veterinary Medicine, 2006, (4): 9-11. (**In Chinese**)

#### **Abstracts:**

23. **Aijun Qiao**, Ying Cui, Huabing Zhang, Fude Fang, Yongsheng Chang. The Differential Expression of MicroRNAs in Mouse Skeletal Muscle Differentiation. Program: New Horizons In Calcium Signaling, 2010, 10: 111. (**Conference Abstract**)
24. Ying Cui, **Aijun Qiao**, Huabing Zhang, Fude Fang, Yongsheng Chang. The Cloning and Expression of Two Genes Involved In Muscle Development in E.coli. Program: New Horizons In Calcium Signaling, 2010, 10: 112. (**Conference Abstract**)
25. Di Shao, Anfang Cui, **Aijun Qiao**, Fude Fang, Yongsheng Chang. FOXO1 Sumoylation Regulates Its Transcriptional Function. International Journal of Cardiology, 2009, (137) Suppl.1:S44. (**Conference abstract**)
26. Anfang Cui, Di Shao, **Aijun Qiao**, Yongsheng Chang, Fude Fang. The Cloning and Expression of Several Genes Involved In Lipid Metabolism in E.coli. International Journal of Cardiology, 2009, (137) Suppl.1:S102. (**Conference Abstract**)

#### **Thesis and Books:**

27. **Aijun Qiao**. Developmental Research of ER, Bcl-2 and P53 in Early Hybrid Embryos of Chicken-Quail. 2007, Shihezi University, China. (**In Chinese**)
28. **Aijun Qiao**. Mouse PNPLA3 Influences Systemic Lipid and Glucose Homeostasis and the Molecular Mechanism of FoxO1 Represses SREBP-1c Expression. 2011, Chinese Academy of Medical Sciences and Peking Union Medical College, China. Supervisor: Fude Fang, Yongsheng Chang and Junwu Zhang. (**In Chinese**)
29. Guihua Yue, Zhidong Zhu, **Aijun Qiao**. May, 2017. Handbook for new cardiovascular physician (Third edition). Chemical Industry Press (CIP). (**Editor In Chief, In Chinese**)

#### **Invited Lectures**

1. Feinberg Cardiovascular Institute, Northwestern University, Chicago, IL. MicroRNA-210 Decreases heme Levels by Targeting Ferrochelatase in Cardiomyocyte, May 13, 2012.
2. Life Sciences Institute, University of Michigan, Ann Arbor, MI. Mouse PNPLA3 Influences Systemic Lipid and Glucose Homeostasis. August 12, 2012.
3. Joslin Diabetes Center, Harvard Medical School, Boston, MA. Mouse PNPLA3 Influences Systemic Lipid and Glucose Homeostasis. July 15, 2012.
4. Cancer Center, Augusta University, Augusta, GA. Ablation of Dual-Specificity

Phosphatase 26 May Activate JNK Phosphorylation to Aggravate Diet-Induced Obesity, Hepatic Steatosis and Glucose Intolerance, February 1, 2013.

5. Cancer Center, Augusta University, Augusta, GA. Loss of Heat Shock Factor 1 In Mice Regulates Glucose Metabolism by Inhibiting Glucagon Responses and Enhances Insulin Sensitivity, October 25, 2013.
6. Cancer Center, Augusta University, Augusta, GA. Ablation of HSF1 In Adipose Tissue Prevents High Fat Diet-Induced Obesity Through Promoting Fat Oxidation and Thermogenesis and Inhibiting Adipogenesis, February 28, 2014.
7. Institute of Basic Medical Sciences, Chinese Academy of Medical Sciences and Peking Union Medical College (CAMS & PUMC), Tsinghua University, China, Beijing. Regulation of Energy Metabolism by Heat Shock Factor 1, July 21, 2014.
8. Graduate School, Augusta University, Augusta, GA. Heat Shock Transcription Factor Hsf1 Regulates Gluconeogenesis through CREB-PGC1 $\alpha$  Pathway, March 19, 2015.
9. Cancer Center, Augusta University, Augusta, GA. Heat Shock Transcription Factor 1 Controls Hepatic Gluconeogenesis and Bioenergetics through NAD<sup>+</sup>-dependent Metabolic Signals, March 4, 2016.
10. School of Engineering, the University of Alabama at Birmingham, Birmingham, AL. The Role of Heat Shock Transcription Factor 1 in Energy Metabolism, August 5, 2016.
11. Department of Biomedical Engineering, the University of Alabama at Birmingham, Birmingham, AL. The Role of Sam68 in Energy Metabolism, August 9, 2017.