

**Haobo Li, Ph.D.**

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 Room 3400, 185 Cambridge Street, Boston, MA 02114, USA

**RESEARCH INTERESTS**

- Non-coding RNA in heart failure and myocardial ischemia reperfusion injury
- Exercise-induced physiological and stress-induced pathological cardiac hypertrophy
- Pathology and therapy for ischemia reperfusion injury in diabetes and aging

**EDUCATION**

- Ph.D.** 2011-2015 **Diabetic Cardiomyopathy**  
 The University of Hong Kong  
 Supervisor: Dr. Zhengyuan Xia and Prof. Michael G. Irwin  
Thesis: Role and mechanism of adiponectin in ischemic postconditioning cardioprotection against myocardial ischemia reperfusion injury in type 1 diabetes (**Outstanding, Top 5%**)
- M.Sc.** 2007-2010 **Animal Nutrition and Feed Science**  
 South China Agricultural University  
 Supervisor: Prof. Xiaobo Wen
- B.A.** 2003-2007 **Animal Science**  
 South China Agricultural University  
 Supervisor: Prof. Jingyun Ma

**AWARDS AND SCHOLARSHIPS**

- 2017-2019 **Postdoctoral Fellowship**, Strategically Focused Research Networks  
 American Heart Association (AHA)
- 2016 **Global Young Scientists Summit, Fellow**  
 National Research Foundation, Prime Minister's Office, Singapore
- 2015 **Graduate Student Scientist Award (Third place)**  
 American Society for Pharmacology & Experimental Therapeutics (ASPET)
- 2015 **YS and Christabel Lung Postgraduate Scholarship**  
 YS and Christabel Lung Fund
- 2015 **Graduate Student Travel Award**, ASPET
- 2014 **American Heart Association (AHA) International Travel Award**  
 AHA Scientific Seession 2014
- 2014 **Dr. Lo Kwee Seong Education Foundation Travel Grant**  
 The University of Hong Kong (HKU)
- 2014 **Resident Abstract Awards Finalist**  
 International Anesthesia Research Society Annual Meeting
- 2014 **Joseph P. Buckley Travel Award**, ASPET Annual Meeting
- 2014 **Runner-up in Graduate Student Best Abstract Competition**, ASPET Annual Meeting
- 2011-2015 **Postgraduate scholarship**, HKU
- 2013, 2014 **Postgraduate Travel Award**, HKU
- 2009 **Enterprise Scholarship for Excellent Student**  
 South China Agricultural University (SCAU)
- 2008 **Second Prize of Excellent Scholarship**, SCAU
- 2007 **First-class Scholarship for Graduate**, SCAU
- 2007 **Award for Excellent Bachelor Thesis**, SCAU

2004-2006 **Award for Excellent Student Leader**, SCAU

### GRANTS (PI:2, Co-PI:2)

- 01/2018-12/2021 Role and mechanism of Brg1/RIP3-mediated necroptosis in protein kinase C $\beta$ 2 over-activation induced cardiac dysfunction in diabetes.  
**Guangdong Provincial Department of Science and Technology**. \$RMB 100,000.  
**Principal Investigator**.
- 01/2017-12/2019 Brg1/lncCBRF through reducing necroptosis restores sevoflurane postconditioning cardioprotection in diabetes.  
**National Natural Science Foundation of China (NSFC)** (81601722). \$RMB 170,000.  
**Principal Investigator**.
- 01/2017-12/2020 PKC $\epsilon$ /Caveolin-3 impact on diabetic heart responsiveness to ischemic postconditioning via regulating autophagy and necroptosis.  
**National Natural Science Foundation of China (NSFC)** (81670770). \$RMB 620,000.  
**Co-Investigator**.
- 03/2017-08/2018 Brg1 by down-regulating lncCNIF-mediated necroptosis restores sevoflurane postconditioning cardioprotection in diabetes.  
**HKU Seed Fund for Basic Research**. \$HKD 77,570. **Co-Investigator**.

### PUBLICATIONS (\* corresponding author, # co-first author)

(First/co-first author: 8, Corresponding author: 2, Total: 38. Google H-index: 16)

#### Research Articles

##### 2018

1. **Li H\***, Xia Z, Chen Y, Qi D, Zheng H. Mechanism and therapies of oxidative stress-mediated cell death in ischemia reperfusion injury. *Oxid Med Cell Longev* 2017,2017:2910643. (Editorial) (\*Corresponding author)
2. Wu Q, Wang T, Chen S, Zhou Q, **Li H**, Hu N, Feng Y, Dong N, Yao S, Xia Z. Cardiac protective effects of remote ischaemic preconditioning in children undergoing tetralogy of fallot repair surgery: a randomized controlled trial. *Eur Heart J* 2018, 39(12):1028-37. (**Recommended by F1000Prime**)
3. Wang CY, **Li H**, Wang S, Mao XM, Yan D, Wong SS, Xia Z, Irwin MG. Repeated Non-invasive Limb Ischemic Preconditioning Confers Cardioprotection Through PKC-e/STAT3 Signaling in Diabetic Rats. *Cell Physiol Biochem* 2018, 54(50):2017-21.
4. Xie X, Yan D, **Li H**, Zhu Q, Li J, Fang YP, Cheung CW, Irwin MG, Xia Z, Lian Q. Enhancement of adiponectin ameliorates non-alcoholic fatty liver disease via inhibition of FoxO1 in type 1 diabetic rats. *J Diabetes Res* 2018, 2018:6254340.
5. Sun L, **Li H**, Tai WL, Gu P, Cheung CW. Adiponectin regulates thermal nociception in a mouse model of neuropathic pain. *Br J Anaesth* 2018, 120(6):1356-67.
6. Tai LW, Pan Z, Sun L, **Li H**, Gu P, Wong SSC, Chung SK, Cheung CW. Suppression of Pax2 attenuates allodynia and hyperalgesia through ET-1-ETAR-NFAT5 signaling in a rat model of neuropathic pain. *Neuroscience* 2018, 27(384):139-51.

##### 2017

7. Deng F, Wang S, Zhang L, Xie X, Cai S, **Li H**, Xie GL, Miao HL, Yang C, Liu X, Xia Z. Propofol through upregulating caveolin-3 attenuates post-hypoxic mitochondrial damage and cell death in H9C2 cardiomyocytes during hyperglycemia. *Cell Physiol Biochem* 2017, 44(1):279-92
8. Yao W, **Li H**, Luo G, Li X, Chen C, Yuan D, Chi X, Xia Z, Hei Z. SERPINB1 Ameliorates Acute Lung Injury in Liver Transplantation Through ERK1/2-mediated STAT3-dependent HO-1 Induction. *Free Radic Biol Med* 2017, 108:542-53.

9. Yao W#, **Li H#**, Han X#, Chen C, Zhang Y, Tai W, Xia Z, Hei Z. MG53 anchored by dysferlin to cell membrane reduces hepatocytes apoptosis which induced by ischemia/reperfusion injury *in vivo* and *in vitro*. *J Cell Mol Med* 2017, 21(10): 2503-13. (#Co-first author)
10. Ge M, Yao W, Yuan D, Zhou S, Chen X, Zhang Y, **Li H**, Xia Z, Hei Z. Brg1-mediated Nrf2/HO-1 pathway activation alleviates hepatic ischemia-reperfusion injury. *Cell Death Dis* 2017, 8(6): e2841.
11. Wang S, Wang C, Yan F, Wang T, He Y, **Li H**, Xia Z, Zhang Z. N-Acetylcysteine attenuates diabetic myocardial ischemia reperfusion injury through inhibiting excessive autophagy. *Mediators Inflamm* 2017:9257291.
12. Gao S, Zhan L, Yang Z, Shi R, **Li H**, Xia Z, Yuan S, Wu Q, Wang T, Yao S. Remote limb ischemic postconditioning protects against myocardial ischemia/reperfusion injury in mice: activation of JAK/STAT3 mediated Nrf2-antioxidant signaling. *Cell Physiol Biochem* 2017, 43(3):1140-51.

## 2016

13. **Li H**, Yao W, Liu Z, Xu A, Huang Y, Ma XL, Irwin MG, Xia Z. Hyperglycemia abrogates ischemic postconditioning cardioprotection by impairing AdipoR1/Caveolin-3/STAT3 signaling in Diabetic Rats. *Diabetes* 2016, 65(4):942-55. (Published with an commentary)
14. Wang Y#, **Li H#**, Huang H, Liu S, Irwin MG, Xia Z. Cardioprotection from emulsified isoflurane postconditioning is lost in rats with streptozotocin-induced diabetes due to the impairment of Brg1/STAT3 signaling. *Clin Sci (Lond)* 2016,130(10):801-12 (#Co-first author)
15. Wang L, Wang T, **Li H**, Liu Q, Zhang Z, Xie W, Feng Y, Socorburam T, Wu G, Xia Z, Wu Q. Receptor interacting protein 3-mediated necroptosis promotes lipopolysaccharide-induced inflammation and acute respiratory distress syndrome in mice. *PLoS One* 2016,11(5):e0155723.
16. Han X, Yao W, Liu Z, **Li H**, Zhang Z, Hei Z, Xia Z. Lipoxin A4 preconditioning attenuates intestinal ischemia reperfusion injury through Keap1/Nrf2 pathway in a lipoxin A4 receptor independent manner. *Oxid Med Cell Longev* 2016,2016:9303606.
17. Lin J, Wang T, Li Y, Wang M, **Li H**, Xia Z, Irwin MG. N-Acetylcysteine restores sevoflurane postconditioning cardioprotection against myocardial ischemia reperfusion injury in diabetic rats. *J Diabetes Res* 2016,2016:9213034.
18. Gao S, Yang Z, Shi R, Xu D, **Li H**, Xia Z, Wu QP, Yao S, Wang T, Yuan S. Diabetes blocks the cardioprotective effects of sevoflurane postconditioning by impairing Nrf2/Brg1/HO-1 signaling. *Eur J Pharmacol.* 2016,779:111-21.
19. Gao S, Zhu Y, **Li H**, Xia Z, Wu Q, Yao S, Wang T. Remote ischemic postconditioning protects against renal ischemia/reperfusion injury by activation of T-LAK-cell-originated protein kinase (TOPK)/PTEN/Akt signaling pathway mediated anti-oxidation and anti-inflammation. *Int Immunopharmacol.* 2016, 38:395-401.
20. Pang L, Cai Y, Tang EH, Yan D, Kosuru R, **Li H**, Irwin MG, Ma H, Xia Z. Cox-2 Inhibition Protects against Hypoxia/Reoxygenation-Induced Cardiomyocyte Apoptosis via Akt-Dependent Enhancement of iNOS Expression. *Oxid Med Cell Longev* 2016;2016:3453059.

## 2015

21. **Li H**, Yao W, Irwin MG, Wang T, Wang S, Zhang L, Xia Z. Adiponectin ameliorates hyperglycemia-induced cardiac hypertrophy and dysfunction by concomitantly activating Nrf2 and Brg1. *Free Radic Biol Med* 2015, 84:311-21.
22. Tian Y#, **Li H#**, Liu P, Xu J, Irwin MG, Xia Z, Tian G. Captopril pretreatment produces an additive cardioprotection to isoflurane preconditioning in attenuating myocardial ischemia reperfusion injury in rabbits and in humans. *Mediators Inflamm* 2015:819232. (#Co-first author)
23. Gan X, Xing D, Su G, Li S, Luo C, Irwin MG, Xia Z, **Li H\***, Hei Z\*. Propofol attenuates small intestinal ischemia reperfusion injury through inhibiting NADPH oxidase mediated mast cell activation. *Oxid Med Cell Longev* 2015:167014. (\*Co-corresponding author)
24. Zhou M, Bao Y, **Li H**, Pan Y, Shu L, Xia Z, Wu D, Lam KSL, Vanhoutte PM, Xu A, Jia W, Hoo R. Deficiency of adipocyte fatty acid binding protein alleviates myocardial ischemic reperfusion injury and diabetes-induced cardiac dysfunction. *Clin Sci (Lond)* 2015, 129(7):547-59.

25. Liu Y, Jin J, Qiao S, Lei S, Liao S, Ge ZD, **Li H**, Irwin MG, Xia Z. Inhibition of PKC beta2 overexpression ameliorates myocardial ischemia/reperfusion injury in diabetic rats via restoring caveolin-3/Akt signaling. *Clin Sci (Lond)* 2015, 129(4):331-4.
26. Luo C, Yuan D, Li X, Yao W, Luo G, Chi X, **Li H**, Irwin MG, Xia Z, Hei Z. Propofol attenuated acute kidney injury after orthotopic liver transplantation via inhibiting gap junction composed of connexin 32. *Anesthesiology* 2015, 122(1):72-86.
27. Zhao W, Liu Z, Yu X, Lai L, **Li H**, Liu Z, Li L, Jiang S, Xia Z, Xu SY. iTRAQ proteomics analysis reveals that PI3K is highly associated with bupivacaine-induced neurotoxicity pathways. *Proteomics* 2015,16(4):564-75.
28. Li S, Xu J, Yao W, **Li H**, Liu Q, Xiao F, Iriwn MG, Xia Z, Ruan W. Sevoflurane pretreatment attenuates TNF- $\alpha$ -induced human endothelial cell dysfunction through activating eNOS/NO pathway. *Biochem Biophys Res Commun* 2015, 469(3):879-86.
29. Xia R, Xu J, Yin H, Wu H, Xia Z, Zhou D, Xia ZY, Zhang L, **Li H**, Xiao X. Intravenous infusion of dexmedetomidine combined isoflurane inhalation reduces oxidative stress and potentiates hypoxia pulmonary vasoconstriction during one-lung ventilation in patients. *Mediators Inflamm* 2015:238041.

#### 2011-2014

30. Xu J, **Li H**, Irwin MG, Xia ZY, Mao X, Lei S, Wong GT, Huang V, Cheung CW, Fang X, Clanachan AS, Xia Z. Propofol ameliorates hyperglycemia-induced cardiac hypertrophy and dysfunction via Heme Oxygenase-1/STAT3 signaling pathway in rats. *Crit Care Med* 2014, 42(8):e583-94. **(Published with an editorial)**
31. **Li H**, Liu Z, Wang J, Wong GT, Cheung CW, Zhang L, Chen C, Xia Z, Irwin MG. Susceptibility to myocardial ischemia reperfusion injury at early stage of type 1 diabetes in rats. *Cardiovasc Diabetol* 2013, 12,133. **(Highly accessed)**
32. Lei S, **Li H**, Xu J, Liu Y, Gao X, Wang J, Ng KF, Lau WB, Ma XL, Rodrigues B, Irwin MG, Xia Z. Hyperglycemia-induced protein kinase C beta2 activation induces diastolic cardiac dysfunction in diabetic rats by impairing caveolin-3 expression and Akt/eNOS signaling. *Diabetes* 2013, 62, 2318-28.
33. Wang T, Mao X, **Li H**, Qiao S, Xu A, Wang J, Lei S, Liu Z, Ng KF, Wong GT, Vanhoutte PM, Irwin MG, Xia Z. N-Acetylcysteine and allopurinol up-regulated the Jak/STAT3 and PI3K/Akt pathways via adiponectin and attenuated myocardial postischemic injury in diabetes. *Free Radic Biol Med* 2013, 63C, 291-303.
34. Zheng Q, Wen X, Han C, **Li H**, Xie X. Effect of replacing soybean meal with cottonseed meal on growth, hematology, antioxidant enzymes activity and expression for juvenile grass carp, *Ctenopharyngodon idellus*. *Fish Physiol Biochem*. 2012 38(4):1059-69.
35. Han C, Wen X, Zheng Q, **Li H**. Effect of starvation on activities and mRNA expression of lipoprotein lipase and hormone-sensitive lipase in tilapia (*Oreochromis niloticus* x *O. aureus*). *Fish Physiol Biochem*. 2011 37(1):113-22.

#### Review Articles

36. Xia Z<sup>&</sup>, **Li H**, Irwin MG. Myocardial ischaemia reperfusion injury: the challenge of translating ischaemic and anaesthetic protection from animal models to humans. *Br J Anaesth* 2016, 117(Suppl. 2):44-62. (&Supervisor) (Review)
37. Kandula V, Kosuru R, **Li H**, Yan D, Zhu Q, Lian Q, Ge RS, Xia Z, Irwin MG. Forkhead box transcription factor 1: role in the pathogenesis of diabetic cardiomyopathy. *Cardiovasc Diabetol* 2016, 15(1):44. (Review)
38. **Li H**, Irwin MG, Tao M, Li Y, Zhang L, Xia Z. Role of forkhead transcription factors in myocardial ischemic reperfusion injury in diabetes. *J Diabetes & Metabol* 2013, 4:247. (Review)

#### **INVITED TALKS**

- 2016 Diabetes abolishes ischemic postconditioning cardioprotection by impairing AdipoR1/Caveolin-3/STAT3 signaling. *13<sup>th</sup> Global Diabetes Conference and Medicare Expo*, 8-10 Aug, 2016, Birmingham, UK.
- 2016 Caveolin-3/AdipoR1 dependent mitochondrial STAT3 activation in ischemic postconditioning cardioprotection in diabetes. *The 18<sup>th</sup> South China International Congress of Cardiology*, 7-10 April, 2016, Guangzhou, China.
- 2015 Role and Mechanism of Adiponectin in Ischemic Postconditioning Cardioprotection: The Importance of AdipoR1/Caveolin-3-dependent STAT3 Activation. *The 1<sup>st</sup> Annual Meeting of the Chinese Society of Cardiothoracic and Vascular Anesthesiology/ 10<sup>th</sup> International Chinese Cardiovascular Anesthesia Forum*, 20-22 Nov, 2015, Xiamen, China.
- 2013 Role of adiponectin in ischemic postconditioning mediated cardioprotection in diabetes, *4<sup>th</sup> World Congress on Diabetes & Metabolism*, 14-16 Aug 2013, Chicago, USA.
- 2013 Jak/STAT3/eNOS mediates restoration of diabetic heart responsiveness to ischemic postconditioning by adiponectin, *Joint Guangdong Provincial Anesthesia Society Annual Meeting and the 6<sup>th</sup> South China and the 3<sup>rd</sup> Hong-Kong-Taiwan-Mainland Anesthesia Meeting*, 10-11 Aug 2013, Guangzhou, China.

## CONFERENCE PRESENTATIONS

- 2017 **Li H**, Liu X, Xiao C, Yeri A, Rosenzweig A. Profiling of long non-coding RNA in physiological cardiac hypertrophy and heart failure. *American Heart Association Strategically Focused Research Network Annual Meeting, Anaheim, USA, 11-15 Nov, 2017*. (Poster)
- 2017 **Li H**, Irwin MG, Xia Z. Hyperglycemia-induced protein kinase C $\beta$ 2 activation causes diastolic cardiac dysfunction by disrupting Brg1-mediated suppression of RIP3 in diabetic rats. *Experimental Biology, Chicago, USA, 22-26 April, 2017*. (Shortlisted in Best Abstract Competition, *Withdrawn*)
- 2016 **Li H**, Wang C, Chen C, Irwin MG, Xia Z. Repeated non-invasive limb ischemic preconditioning confers cardioprotection in diabetes by reducing necroptosis through STAT3 activation that is PKC $\epsilon$ /Caveolin-3 dependent. *Experimental Biology, San Diego, USA, 2-6 April, 2016*. (Poster)
- 2015 **Li H**, Yao W, Liu Z, Wang S, Irwin MG, Xia Z. Diabetes abrogates the cardioprotective effects of ischemic postconditioning by impairing AdipoR1/Caveolin-3/STAT3 signaling, *American Heart Association Scientific Sessions, Orlando, USA, 7-11 Nov, 2015*. (Poster)
- 2015 **Li H**, Irwin MG, Xia Z. Caveolin-3/AdipoR1 dependent mitochondrial STAT3 activation in ischemic postconditioning cardioprotection, *Experimental Biology, Boston, USA, 28 Mar-1 April, 2015*. (Third Place in Graduate Student Best Abstract Competition) (**Oral presentation**)
- 2015 **Li H**, Yao W, Irwin MG, Xia Z. Propofol postconditioning confers hepatic protection via activating Nrf2 in the early minutes of reperfusion which requires adiponectin in mice. *International Anesthesia Research Society Annual Meeting, Hawaii, USA, 21-24 Mar, 2015*.
- 2014 **Li H**, Irwin MG, Xia Z. Ischemic postconditioning confers cardioprotection through adiponectin-dependent mitochondrial STAT3 activation in mice, *American Heart Association Scientific Sessions, Chicago, USA, 15-19 Nov, 2014*. (Dr. Lo Kwee Seong Education Foundation Travel Grant and AHA International Travel Award)
- 2014 **Li H**, Mao X, Irwin MG, Wong GT, Clanachan AS, Vanhoutte PM, Xia Z. Propofol confers cardioprotection via HO-1 dependent STAT3 activation in normal rats but via adiponectin dependent STAT3 activation in type 1 diabetic rats, *International Anesthesia Research Society Annual Meeting, Montreal, Canada, 17-20 May, 2014*. (Resident Abstract Awards Finalist)
- 2014 **Li H**, Irwin MG, Xia Z. Essential role of adiponectin in ischemic postconditioning cardioprotection and its association with signal transducer and activator of transcription 3, *Experimental Biology, San Diego, USA, 26-30 April 2014*. (Runner-up in Graduate Student Best Abstract Competition and Joseph P. Buckley Travel award)

- 2013 **Li H**, Wang T, Lei S, Ng KF, Irwin MG, Xu A, Xia Z. Adiponectin restores diabetic heart sensitivity to ischemic postconditioning through Jak/STAT3/eNOS signaling pathway, *8<sup>th</sup> International Symposium on Healthy Aging, Tsim Sha Tsui, Hong Kong, 9-10 Mar 2013. (Oral presentation)*
- 2013 **Li H**, Wang T, Lei S, Ng KF, Irwin MG, Xu A, Xia Z. Adiponectin Restores Diabetic Heart Sensitivity to Ischemic Postconditioning: Role of STAT3 Activation, *Experimental Biology, Boston, USA, 21-25 Apr 2013. (Poster)*

## PROFESSIONAL EXPERIENCE

### Journal Reviewer

- 2014-present *Ann Intern Med; Cell Death Dis; Br J Pharmacol; Clin Sci; Sci Rep; PLoS One; Oxid Med Cell Longev; Cell Physiol Biochem; Appl Physiol Nutr Metab; J Diabetes Res; Horm Metab Res; J Diabetes; Gene; Eur J Pharmacol; Biomed Pharmacother; Biosci Rep; Neural Regen Res; Biomed Rep; Br J Med Med Res.*
- 2016 Abstract reviewer, **American Heart Association Scientific Session.**

### Guest Editor

- 2017 Oxid Med Cell Longev (Leading guest editor)
- 2017 Int J Mol Sci (Guest editor)

### Grant Reviewer

- 2015-2018 Swiss National Science Foundation

### Meeting co-chair

- 2016 13<sup>th</sup> Global Diabetes Conference and Medicare Expo, August 8-10, 2016, Birmingham, UK
- 2016 21<sup>th</sup> Research Postgraduate Symposium, Faculty of Medicine, The University of Hong Kong, December 1-2, 2016, Hong Kong SAR China, **Poster adjudicator.**

### Membership

- 2014-present American Heart Association (**AHA**)
- 2018-present American Diabetes Association (**ADA**)
- 2013-present American Society for Pharmacology & Experimental Therapeutics (**ASPET**)
- 2014-present International Anesthesia Research Society (**IARS**)
- 2014-present Chinese Society of Cardiothoracic and Vascular Anesthesiology (**CSCVA**)