

Xuan Li

Postdoctoral Research Fellow

Department of Physiology and Biophysics, University of Mississippi Medical Center.

Mobile: 601-842-5300 | Email: xli3@umc.edu.

Address: 2500 North State Street, Jackson MS, 39216.

EDUCATION

Doctor of Medicine (MD) | 2003.9-2011.7, Beijing

Peking University Health Science Center

- The degree was eight-year program, PhD Equivalent.
- Dissertation: Multicenter Retrospective Study of Malleolar Fractures Treated by Operations, Mentor: Dr. Baoguo Jiang (Academician of Chinese Academy of Engineering)

PROFESSION

Postdoctoral Research Fellow | 2017.5-present, Jackson

Center Department of Physiology, University of Mississippi Medical Center

- Focused on cardiovascular diseases such as heart failure, ischemia heart disease, metabolic derangement induced cardiac dysfunction, etc., with specific research on response in heart under different stresses and molecular regulational mechanism in heart, etc.
- Only winner of 2019 Postdoctoral Publication Award by UMMC.

Cardiac Surgeon | 2011.8-2017.5, Beijing

Department of Surgery, Fuwai Hospital

- Participated in over 1600 operations that include most types of cardiovascular procedures, with overall mortality below 1%.
- Mentorship to graduate students on diagnoses, treatment and clinical research projects.
- 2014 Excellent-Performance Clinician of the hospital.

Intern | 2007.1-2011.7, Beijing

The People's Hospital of Peking University

- Systematically trained in surgery, internal medicine, gynecology and pediatrics.

RESEARCH METHODS AND TECHNIQUES

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| • Left anterior descending artery ligation, | • Cardiomyocyte isolation, | • Immunoprecipitation, |
| • Transverse/abdominal aortic constriction, | • Working heart, | • Mouse colony management, |
| • TTC stain, | • Glycolysis and glucose uptake Measurement, | • Genotyping, |
| • Echocardiography incl. M-mode, B-mode, and Doppler, | • Langendorff, | • ATP level and reagent oxidative species measurement, etc. |
| | • Western blot, | |
| | • Real-time PCR, | |
| | • Transverse aortic constriction | |

PRESENTATIONS

- Oral presentation for 2021 AHA's Scientific Sessions: Sestrin2 plays an essential role in regulating the unfolded protein response during cardiac ischemia/reperfusion and preventing excessive myocardial apoptosis | 2021, Virtual
- Poster presentation for 2020 AHA's Scientific Sessions: Direct Cardiac Actions of Empagliflozin Improve Mitochondrial Oxidative Phosphorylation and Attenuate Pressure-overload Heart Failure | 2020, Virtual
- Oral presentation for 2019 CNAHA/ACRE/CAAC Joint Research Symposium: Empagliflozin Attenuates Heart Failure in Non-Diabetic Mice by Improving Myocardial Metabolism | 2019 Philadelphia
- Moderated digital poster presentation for 2019 American Heart Association (AHA)'s Scientific Sessions: Sestrin2-mTORC1 Signaling Mediates Myocardial Endoplasmic Reticulum Stress During Ischemia/reperfusion | 2019, Philadelphia
- Moderated digital poster presentation for 2019 AHA's Scientific Sessions: Empagliflozin Improves Heart Failure Caused by Pressure Overload by Regulating Cardiac Metabolism | 2019, Philadelphia
- Oral presentation for 2019 ASB Research Day: Sestrin2 Modulates ER Stress in Cardiovascular Disease | 2019, Jackson
- Oral presentation for 2019 UMMC Physiology and Biophysics Lecture Series: Sestrin2 Modulates in Myocardial Remodeling | 2019, Jackson
- Oral presentation for 2018 AHA's Scientific Sessions: The Metabolic Shift by Dichloroacetate Ameliorates Cardiac Dysfunction Caused by Ischemic Insults in Aging | 2018, Chicago
- Poster for 2018 AHA's Scientific Sessions: Sestrin2-AMPK Signaling Cascade Mediates Cardiac Endoplasmic Reticulum Homeostasis during Ischemia and Reperfusion | 2018, Chicago
- Oral presentation for 2018 UMMC Physiology and Biophysics lecture series: Metabolic Regulation is a Strategy to Limit Ischemia and Reperfusion Injury | 2018, Jackson
- Poster for 2017 American Heart Association's Scientific Sessions: Can Regulate Heart's Metabolic Pattern Improve the Prognosis of Ischemic Heart Failure? | 2017, Anaheim
- Oral presentation for Surgical Treatment of Complex Congenital Heart Disease: Atrioventricular Valve Complications after Glenn Shunt for Single Ventricle | 2014, Beijing
- Oral presentation for Complicated Case Discussion in Surgical Department: Death Cases of Severe Cyanotic Congenital Heart Disease: Lessons Learned | 2013, Beijing
- Oral presentation for BOA Annual Meeting and Beijing International Orthopedic Forum: Treatment of Distal Femoral Fractures with Open Reduction and Internal Fixation: A Multicenter Retro-Spective Investigation | 2010, Beijing
- Oral presentation for Residency Forum of Peking University People's Hospital: Case Report of Severe Lower Extremities Injuries Attacked by Giant Panda and Experience of Treatment | 2010, Beijing

PEER-REVIEWED PUBLICATIONS

- Sex differences in the impact of parental obesity on offspring cardiac SIRT3 expression,

mitochondrial efficiency, and diastolic function early in life. do Carmo JM, Omoto ACM, Dai X, Moak SP, Mega GS, Li X, Wang Z, Mouton AJ, Hall JE, da Silva AA. *Am J Physiol Heart Circ Physiol*. 2021 Sep 1;321(3):H485-H495. doi: 10.1152/ajpheart.00176.2021. Epub 2021 Jul 23.

- Obesity, kidney dysfunction, and inflammation: interactions in hypertension. Hall JE, Mouton AJ, da Silva AA, Omoto ACM, Wang Z, Li X, do Carmo JM. *Cardiovasc Res*. 2021 Jul 7;117(8):1859-1876. doi: 10.1093/cvr/cvaa336.

- Dimethyl fumarate preserves left ventricular infarct integrity following myocardial infarction via modulation of cardiac macrophage and fibroblast oxidative metabolism. Mouton AJ, Flynn ER, Moak SP, Aitken NM, Omoto ACM, Li X, da Silva AA, Wang Z, do Carmo JM, Hall JE. *J Mol Cell Cardiol*. 2021 May 21;158:38-48. doi: 10.1016/j.yjmcc.2021.05.008. Epub 2021 Mar 13.

- Direct Cardiac Actions of the Sodium Glucose Co-Transporter 2 Inhibitor Empagliflozin Improve Myocardial Oxidative Phosphorylation and Attenuate Pressure-Overload Heart Failure. Li X, Lu Q, Qiu Y, do Carmo JM, Wang Z, da Silva AA, Mouton A, Omoto ACM, Hall ME, Li J, Hall JE. *J Am Heart Assoc*. 2021;10:e018298. doi: 10.1161/JAHA.120.018298. Epub 2021 Mar 13.

- Interaction of Obesity and Hypertension on Cardiac Metabolic Remodeling and Survival Following Myocardial Infarction. Mouton AJ, Flynn ER, Moak SP, Li X, da Silva AA, Wang Z, do Carmo JM, Hall ME, Hall JE. *J Am Heart Assoc*. 2021 Mar 16;10(6):e018212. doi: 10.1161/JAHA.120.018212. Epub 2021 Mar 5.

- Sestrin2 is an endogenous antioxidant that improves contractile function in the heart during exposure to ischemia and reperfusion stress. Liu Y, Li M, Sun M, Zhang Y, Li X, Sun W, Quan N. *Free Radic Biol Med*. 2021 Mar;165:385-394. doi: 10.1016/j.freeradbiomed.2021.01.048. Epub 2021 Feb 10.

- Restoration of Cardiac Function After Myocardial Infarction by Long-Term Activation of the CNS Leptin-Melanocortin System. Gava FN, da Silva AA, Dai X, Harmancey R, Ashraf S, Omoto ACM, Salgado MC, Moak SP, Li X, Hall JE, do Carmo JM. *JACC Basic Transl Sci*. 2021 Jan;6(1):55-70. doi: 10.1016/j.jacbts.2020.11.007. eCollection 2021 Jan.

- Substrate metabolism regulated by Sestrin2-mTORC1 alleviates pressure overload-induced cardiac hypertrophy in aged heart. Quan N, Li X, Zhang J, Han Y, Sun W, Ren D, Tong Q, Li J. *Redox Biol*. 2020 Sep;36:101637. doi: 10.1016/j.redox.2020.101637. Epub 2020 Jul 9.

- Empagliflozin Ameliorates Obesity-Related Cardiac Dysfunction by Regulating Sestrin2-Mediated AMPK-mTOR Signaling and Redox Homeostasis in High-Fat Diet-Induced Obese Mice. Sun X, Han F, Lu Q, Li X, Ren D, Zhang J, Han Y, Xiang YK, Li J. *Diabetes*. 2020 Jun;69(6):1292-1305. doi: 10.2337/db19-0991. Epub 2020 Mar 31.

- Obesity, Hypertension, and Cardiac Dysfunction: Novel Roles of Immunometabolism in Macrophage Activation and Inflammation. Mouton AJ, Li X, Hall ME, Hall J. *Circ Res*. 2020 Mar 13;126(6):789-806. doi: 10.1161/CIRCRESAHA.119.312321. Epub 2020 Mar 12.

- Role of Hyperinsulinemia and Insulin Resistance in Hypertension: Metabolic Syndrome Revisited. da Silva AA, do Carmo JM, Li X, Wang Z, Mouton AJ, Hall JE. *Can J Cardiol*. 2020 May;36(5):671-682. doi: 10.1016/j.cjca.2020.02.066. Epub 2020 Feb 12.

- Empagliflozin attenuates ischemia and reperfusion injury through LKB1/AMPK signaling pathway. Lu Q, Liu J, Li X, Sun X, Zhang J, Ren D, Tong N, Li J. *Mol Cell Endocrinol*.

2020 Feb 5;501:110642. doi: 10.1016/j.mce.2019.110642. Epub 2019 Nov 21.

- Dichloroacetate ameliorates cardiac dysfunction caused by ischemic insults through AMPK signal pathway- not only shifts metabolism. Li X, Liu J, Hu H, Lu S, Lu Q, Quan N, Rousselle T, Patel MS, Li J. *Toxicol Sci.* 2019 Feb 1;167(2):604-617.
 - AMPK: a therapeutic target of heart failure - not only metabolism regulation. Li X, Liu J, Lu Q, Ren D, Sun X, Rousselle T, Tan Y, Li J. *Biosci Rep.* 2019 Jan 3;39(1).
 - AMPK: a balancer of the renin-angiotensin system. Liu J, Li X, Lu Q, Ren D, Sun X, Rousselle T, Li J, Leng J. *Biosci Rep.* 2019 Sep 3;39(9).
 - AMPK is associated with the beneficial effects of antidiabetic agents on cardiovascular disease. Qingguo Lu, Dr. Xuan Li, Jia Liu, Xiaodong Sun, Thomas Rousselle, Di Ren, Nanwei Tong. *Biosci Rep.* 2019 Feb 15;39(2).
 - The cardioprotective effects of carvedilol on ischemia and reperfusion injury by AMPK signaling pathway. Hu H, Li X, Ren D, Tan Y, Chen J, Yang L, Chen R, Li J, Zhu P. *Biomed Pharmacother.* 2019 Sep;117:109106.
 - Activation of AMPK inhibits inflammatory response during hypoxia and reoxygenation through modulating JNK-mediated NF- κ B pathway. Chen X, Li X, Zhang W, He J, Xu B, Lei B, Wang Z, Cates C, Rousselle T, Li J. *Metabolism.* 2018 Jun;83:256-270.
 - Transcatheter Aortic Valve Implantation Using the J-Valve System: A 1-year Follow-up Study. Luo X, Wang X, Li X, Wang X, Xu F, Liu M, Yu B, Li F, Tong M, Wang W. *J Thorac Cardiovasc Surg.* 2017 Jul;154(1):46-55.
 - A Retrospective Study of Posterior Malleolus Fractures, Hai-lin Xu, Xuan Li, Dian-ying Zhang, et al. *International Orthopaedics (SICOT).* 2012 36:1929–1936
 - Modified Sakakibara Classification System for Ruptured Sinus of Valsalva Aneurysm, Xin-jin L, Xuan L, Bo P, et al. *J Thorac Cardiovasc Surg.* 2013 Oct;146(4):874-8. doi: 10.1016/j.jtcvs.2012.12.059. Epub 2013 Jan 11.
 - Multicenter Follow-up Study of Ankle Fracture Surgery, XU Hai-lin, LIU Li-min, LI Xuan, et al. *Chin Med J* 2012;125(4):574-578
 - Surgical Treatment for Hypertrophic Obstructive Cardiomyopathy Associated with Mitral Stenosis, LI Xuan, XU Fei, YU Bing, GUO Yan. *Journal of Cardiovascular & Pulmonary Diseases*, 2017; 36(4):33-6 (in Chinese)
 - Surgical Treatment for Failed Interventional Cases in Congenital Heart Disease, Xuan L, Wei G, Dianyuan L, et al. *Chinese Journal of Thoracic and Cardiovascular Surgery*, 2015; 31(7): 391-3. (in Chinese)
 - Analysis of Re-operation Results after Total Correction of Tetralogy of Fallot, Xuan L, Rui J, Jun Y, et al. *Journal of Cardiovascular & Pulmonary Diseases*, LI XUAN, March 2014; 33(2): 172-7 (in Chinese)
 - Infant-Type Anomalous Origin of Left Coronary Artery from Pulmonary Artery: Analysis of Diagnosis and Surgical Treatment. *Chin Heart J.* LI XUAN, 2015;27(6): 669-672. (in Chinese)
 - Amplification Effects in Nerve Regeneration after Different Segment Injury: Experiment with Rabbit Median Nerve, *Natl Med J China*, LI XUAN, 2009 June;89(23):1645-1649. (in Chinese)
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COLLABORATIVE PROJECTS

- The Mechanisms of Sodium Glucose Cotransporter 2 in Protecting Hearts from Injuries Induced by Obesity, Ischemia Reperfusion and Pressure Overload at University of Mississippi Medical Center (UMMC) | 2019-
- The Role of Sestrin2 in Myocardial Ischemia Reperfusion Injury at UMMC | 2018-
- The Mechanism of Cardio Protection of Carvedilol and Telmisartan during Ischemia at UMMC | 2017-2018
- Morphological Shaping of Aortic Valve Using Preoperative 3D-Printing at Fuwai Hospital | 2015-2016
- Treatment of Complicated Periarticular Fractures at PKUHSC | 2010-2011
- Mechanism of Nerve Regeneration after Injuries and Repairs of Peripheral Nerves and Remodeling of Central Nervous System at PKUHSC | 2008-2010
- Relationship between LMNA Gene Mutation and Charcot-Marie-Tooth Disease at PKUHSC | 2006, etc.

REVIEWER BASE

- Reviewer for *Texas Heart Institute Journal* |2018-
- Reviewer for *Biomedicine & Pharmacotherapy* |2018-
- Reviewer for *Biochemical Pharmacology* |2019-
- Reviewer for *Aging* |2019-
- Reviewer for *Medical Science Monitor* |2019-
- Reviewer for *Journal of Cardiovascular Pharmacology and Therapeutics* |2019-
- Reviewer of *Experimental and Therapeutic Medicine* |2020-
- Reviewer of *Life Sciences* |2020-
- Reviewer of *Plos One* |2020-
- Reviewer of *Scientific Report* |2020-
- Reviewer of *Clinical and Experimental Pharmacology and Physiology* |2020-
- Reviewer of *Scientific Report* |2020-
- Reviewer of *Frontiers in Endocrinology* |2021-
- Reviewer of *Frontiers in Cardiovascular Medicine* |2021-

MEMBERSHIP AND TRAINING

- American Physiological Society (APS) Membership |2020-
- American Heart Association(AHA)Membership |2018-
- Trainee of Prepared Future Faculty in Stony Brook University |2018,New York

CERTIFICATIONS

- Certificate of Licensed Doctor issued by P.R.C |2011
- Certificate of Professional Technical Qualification issued by P.R.C |2014
- Radiation Operation Permit filed by Fuwai Hospital |2016

SOCIAL SERVICE

- Volunteer for the field hospital runner at the Parking Garage of UMMC during COVID-19 surging in Mississippi |2021.
- Practitioner for free clinics and sport games |2011-2015, Beijing; voluntary tutor at a

poverty-stricken area |2005, Sichuan; always willing to help others such as reset his elbow dislocation for an infant on the train.

HONOR AND AWARD

- Winner of 2021 AHA Postdoctoral Fellowship Award
- Winner of Young Investigator Award of 2019 CNAHA/ACRE/CAAC Joint Research Symposium
- Winner of 2019 Winner of 2019 BCVS Travel Grant
- Only winner of 2019 Postdoctoral Publication Award of UMMC | 2019, Jackson
- Excellent-Performance Clinician of Fuwai Hospital | 2014, Beijing
- Outstanding Contribution Award to Primary Health Practice at The People's Hospital of Peking University | 2009, Beijing
- First place in Oral Sessions of The People's Hospital of Peking University|2008, Beijing
- Excellent Presentation on Anatomy PBL at Peking University | 2006, Beijing
- Excellent Academic Performance Scholarship at Peking University|2003-2004, Beijing
- Hong Kong City University Scholarship at Peking University | 2004, Beijing