

Curriculum Vitae

PERSONAL INFORMATION

Heng Zeng, MD

Assistant Professor

Office Address:

G-754

Jackson, MS 39216

Work Phone: (601)984-2136

Fax: (601)984-1637

Email: hzeng@umc.edu

CURRENT POSITIONS

2020- present Assistant Professor, Department of Pharmacology and Toxicology,
School of Medicine, University of Mississippi Medical Center, USA

EDUCATION

1982-1987 MD, University of South China, School of Medicine, P.R. China

1997-1999 Postdoctoral Fellow, Department of Pharmacology and Toxicology,
University of Southern Illinois, School of Medicine, USA

ACADEMIC APPOINTMENTS OR OTHER PREVIOUS APPOINTMENTS

09/2011 - 06/2020 Scientist, Department of Pharmacology / Toxicology
University of Mississippi Medical Center, School of Medicine

07/2005 - 08/2011 Scientist, Department of Pediatrics,
Vanderbilt University, School of Medicine

10/1999 - 06/2005 Research Associate, Department of Medicine
Vanderbilt University, School of Medicine

10/1997 - 09/1999 Postdoctoral fellow, Department of Pharmacology / Toxicology
South Illinois University, School of Medicine

07/1987 - 09/1997 Surgeon, Department of Surgery
University of South China, School of Medicine, P.R. China

ADMINISTRATIVE SERVICE

2015 – Present Co-director, Core lab of echocardiography

PROFESSIONAL/SOCIETY MEMBERSHIPS

2020 - Present AHA, Member

RESEARCH FUNDINGS

Title: Endothelial PHD2 in hypertensive vascular remodeling 9/2021 - 08/2025

NHLBI

R01HL151536 A1 (PI: Dr. Chen JX)

Co-PI (50% Effort).

Title: Coronary microvascular rarefaction in diabetic/obese heart 03/2017 - 02/2022

NHLBI

2R01HL102042 (PI: Dr. Chen JX)

Investigator (100% Effort).

Title: Regulation of vascular maturation/regression in diabetes 07/2010 - 03/2016

NHLBI

R01HL102042 (PI: Dr. Chen JX)

Investigator (100% Effort).

Title: Hsp90/Client Protein Interactions in the Newborn Lung 03/2005 - 02/2009

NHLBI

R01 HL075511 (PI; Dr. Aschner JL)

Investigator (100% Effort).

PUBLICATIONS

1. He X, Zeng H, Cantrell AC, Chen JX, **Regulatory role of TIGAR on endothelial metabolism and angiogenesis.** Journal of cellular physiology, 2021 Apr 30;
2. Su H, Cantrell AC, Zeng H, Zhu SH, Chen JX, **Emerging Role of Pericytes and Their Secretome in the Heart.** Cells, 2021 Mar 4;10(3)
3. Li L, Zeng H, He X, Chen JX, **Sirtuin 3 Alleviates Diabetic Cardiomyopathy by Regulating TIGAR and Cardiomyocyte Metabolism.** Journal of the American Heart Association, 2021 Feb;10(5):e018913
4. Zeng H, He X, Chen JX, **A Sex-Specific Role of Endothelial Sirtuin 3 on Blood Pressure and Diastolic Dysfunction in Female Mice.** International journal of molecular sciences, 2020 Dec 21;21(24)
5. Feng X, Su H, He X, Chen JX, Zeng H, **SIRT3 Deficiency Sensitizes Angiotensin-II-Induced Renal Fibrosis.** Cells, 2020 Nov 20;9(11)
6. Su H, Zeng H, He X, Zhu SH, Chen JX, **Histone Acetyltransferase p300 Inhibitor Improves Coronary Flow Reserve in SIRT3 (Sirtuin 3) Knockout Mice.** Journal of the American Heart Association, 2020 Sep 15;9(18):e017176
7. Zhao Y, Zeng H, Liu B, He X, Chen JX, **Endothelial prolyl hydroxylase 2 is necessary for angiotensin II-mediated renal fibrosis and injury.** American journal of physiology. Renal physiology, 2020 Aug 1;319(2):F345-F357
8. Zeng H, He X, Chen JX, **Endothelial Sirtuin 3 Dictates Glucose Transport to Cardiomyocyte and Sensitizes Pressure Overload-Induced Heart Failure.** Journal of the American Heart Association, 2020 Jun 2;9(11):e015895
9. Su H, Zeng H, Liu B, Chen JX, **Sirtuin 3 is essential for hypertension-induced cardiac fibrosis via mediating pericyte transition.** Journal of cellular and molecular medicine, 2020 Jul;24(14):8057-8068
10. Zeng H, Chen JX, **Microvascular Rarefaction and Heart Failure With Preserved Ejection Fraction.** Frontiers in cardiovascular medicine, 2019;6:15
11. He X, Zeng H, Chen JX, **Emerging role of SIRT3 in endothelial metabolism, angiogenesis, and cardiovascular disease.** Journal of cellular physiology, 2019 Mar;234(3):2252-2265
12. Zeng H, Chen JX. **Sirtuin 3, Endothelial Metabolic Reprogramming, and Heart Failure With Preserved Ejection Fraction.** Cardiovasc Pharmacol. 2019 Oct;74(4):315-323.

13. Zhou LY, Zeng H, Wang S, Chen JX, **Regulatory Role of Endothelial PHD2 in the Hepatic Steatosis.** Cellular physiology and biochemistry : international journal of experimental cellular physiology, biochemistry, and pharmacology, 2018;48(3):1003-1011
14. He X, Zeng H, Roman RJ, Chen JX, **Inhibition of prolyl hydroxylases alters cell metabolism and reverses pre-existing diastolic dysfunction in mice.** International journal of cardiology, 2018 Dec 1;272:281-287
15. He X, Zeng H, Chen ST, Roman RJ, Aschner JL, Didion S, Chen JX, **Endothelial specific SIRT3 deletion impairs glycolysis and angiogenesis and causes diastolic dysfunction.** Journal of molecular and cellular cardiology, 2017 Nov;112:104-113
16. Wang S, Zeng H, Chen ST, Zhou L, Xie XJ, He X, Tao YK, Tuo QH, Deng C, Liao DF, Chen JX, **Ablation of endothelial prolyl hydroxylase domain protein-2 promotes renal vascular remodelling and fibrosis in mice.** Journal of cellular and molecular medicine, 2017 Sep;21(9):1967-1978
17. Tao YK, Zeng H, Zhang GQ, Chen ST, Xie XJ, He X, Wang S, Wen H, Chen JX, **Notch3 deficiency impairs coronary microvascular maturation and reduces cardiac recovery after myocardial ischemia.** International journal of cardiology, 2017 Jun 1;236:413-422
18. Wang S, Zeng H, Xie XJ, Tao YK, He X, Roman RJ, Aschner JL, Chen JX, **Loss of prolyl hydroxylase domain protein 2 in vascular endothelium increases pericyte coverage and promotes pulmonary arterial remodeling.** Oncotarget, 2016 Sep 13;7(37):58848-58861
19. He X, Zeng H, Chen JX, **Ablation of SIRT3 causes coronary microvascular dysfunction and impairs cardiac recovery post myocardial ischemia.** International journal of cardiology, 2016 Jul 15;215:349-57
20. Zeng H, He X, Tuo QH, Liao DF, Zhang GQ, Chen JX, **LPS causes pericyte loss and microvascular dysfunction via disruption of Sirt3/angiopoietins/Tie-2 and HIF-2/Notch3 pathways.** Scientific reports, 2016 Feb 12;6:20931
21. Hou X, Zeng H, Tuo QH, Liao DF, Chen JX, **Apelin Gene Therapy Increases Autophagy via Activation of Sirtuin 3 in Diabetic Heart.** Diabetes research (Fairfax, Va.), 2015 Oct;1(4):84-91
22. Zeng H, Vaka VR, He X, Booz GW, Chen JX, **High-fat diet induces cardiac remodelling and dysfunction: assessment of the role played by SIRT3 loss.** Journal of cellular and molecular medicine, 2015 Aug;19(8):1847-56

23. Hou X, Zeng H, He X, Chen JX, **Sirt3 is essential for apelin-induced angiogenesis in post-myocardial infarction of diabetes.** Journal of cellular and molecular medicine, 2015 Jan;19(1):53-61
24. Zeng H, Chen JX, **Conditional knockout of prolyl hydroxylase domain protein 2 attenuates high fat-diet-induced cardiac dysfunction in mice.** PloS one, 2014;9(12):e115974
25. Zeng H, Li L, Chen JX, **Loss of Sirt3 limits bone marrow cell-mediated angiogenesis and cardiac repair in post-myocardial infarction.** PloS one, 2014;9(9):e107011
26. Caito S, Zeng H, Aschner JL, Aschner M, **Methylmercury alters the activities of Hsp90 client proteins, prostaglandin E synthase/p23 (PGES/23) and nNOS.** PloS one, 2014;9(5):e98161
27. Zeng H, He X, Hou X, Li L, Chen JX, **Apelin gene therapy increases myocardial vascular density and ameliorates diabetic cardiomyopathy via upregulation of sirtuin 3.** American journal of physiology. Heart and circulatory physiology, 2014 Feb 15;306(4):H585-97
28. Li L, Zeng H, Hou X, He X, Chen JX, **Myocardial injection of apelin-overexpressing bone marrow cells improves cardiac repair via upregulation of Sirt3 after myocardial infarction.** PloS one, 2013;8(9):e71041
29. Zeng H, Li L, Chen JX, **Overexpression of angiotensin-1 increases CD133+/c-kit+ cells and reduces myocardial apoptosis in db/db mouse infarcted hearts.** PloS one, 2012;7(4):e35905
30. Chen JX, Tuo Q, Liao DF, Zeng H, **Inhibition of protein tyrosine phosphatase improves angiogenesis via enhancing Ang-1/Tie-2 signaling in diabetes.** Experimental diabetes research, 2012;2012:836759
31. Li L, Zeng H, Chen JX, **Apelin-13 increases myocardial progenitor cells and improves repair postmyocardial infarction.** American journal of physiology. Heart and circulatory physiology, 2012 Sep 1;303(5):H605-18
32. Chen JX, Zeng H, Reese J, Aschner JL, Meyrick B, **Overexpression of angiotensin-2 impairs myocardial angiogenesis and exacerbates cardiac fibrosis in the diabetic db/db mouse model.** American journal of physiology. Heart and circulatory physiology, 2012 Feb 15;302(4):H1003-12
33. Tuo QH, Xiong GZ, Zeng H, Yu HD, Sun SW, Ling HY, Zhu BY, Liao DF, Chen JX, **Angiotensin-1 protects myocardial endothelial cell function blunted by angiotensin-2 and high glucose condition.** Acta pharmacologica Sinica, 2011 Jan;32(1):45-51

34. Erez A, Nagamani SC, Shchelochkov OA, Premkumar MH, Campeau PM, Chen Y, Garg HK, Li L, Mian A, Bertin TK, Black JO, Zeng H, Tang Y, Reddy AK, Summar M, O'Brien WE, Harrison DG, Mitch WE, Marini JC, Aschner JL, Bryan NS, Lee B, **Requirement of argininosuccinate lyase for systemic nitric oxide production.** *Nature medicine*, 2011 Nov 13;17(12):1619-26
35. Vadivel A, Aschner JL, Rey-Parra GJ, Magarik J, Zeng H, Summar M, Eaton F, Thibaud B, **L-citrulline attenuates arrested alveolar growth and pulmonary hypertension in oxygen-induced lung injury in newborn rats.** *Pediatric research*, 2010 Dec;68(6):519-25
36. Fike CD, Pfister SL, Slaughter JC, Kaplowitz MR, Zhang Y, Zeng H, Frye NR, Aschner JL, **Protein complex formation with heat shock protein 90 in chronic hypoxia-induced pulmonary hypertension in newborn piglets.** *American journal of physiology. Heart and circulatory physiology*, 2010 Oct;299(4):H1190-204
37. Aschner JL, Zeng H, Kaplowitz MR, Zhang Y, Slaughter JC, Fike CD, **Heat shock protein 90-eNOS interactions mature with postnatal age in the pulmonary circulation of the piglet.** *American journal of physiology. Lung cellular and molecular physiology*, 2009 Mar;296(3):L555-64
38. Tuo QH, Zeng H, Stinnett A, Yu H, Aschner JL, Liao DF, Chen JX, **Critical role of angiotensin/Tie-2 in hyperglycemic exacerbation of myocardial infarction and impaired angiogenesis.** *American journal of physiology. Heart and circulatory physiology*, 2008 Jun;294(6):H2547-57
39. Zeng H, Ornatowska M, Joo MS, Sadikot RT, **TREM-1 expression in macrophages is regulated at transcriptional level by NF-kappaB and PU.1.** *European journal of immunology*, 2007 Aug;37(8):2300-8
40. Aschner JL, Foster SL, Kaplowitz M, Zhang Y, Zeng H, Fike CD, **Heat shock protein 90 modulates endothelial nitric oxide synthase activity and vascular reactivity in the newborn piglet pulmonary circulation.** *American journal of physiology. Lung cellular and molecular physiology*, 2007 Jun;292(6):L1515-25
41. Chen JX, Zeng H, Tuo QH, Yu H, Meyrick B, Aschner JL, **NADPH oxidase modulates myocardial Akt, ERK1/2 activation, and angiogenesis after hypoxia-reoxygenation.** *American journal of physiology. Heart and circulatory physiology*, 2007 Apr;292(4):H1664-74
42. Sadikot RT, Zeng H, Azim AC, Joo M, Dey SK, Breyer RM, Peebles RS, Blackwell TS, Christman JW, **Bacterial clearance of Pseudomonas aeruginosa is enhanced by the inhibition of COX-2.** *European journal of immunology*, 2007 Apr;37(4):1001-9

43. Chen JX, Zeng H, Lawrence ML, Blackwell TS, Meyrick B, **Angiopietin-1-induced angiogenesis is modulated by endothelial NADPH oxidase.** American journal of physiology. Heart and circulatory physiology, 2006 Oct;291(4):H1563-72
44. Sadikot RT, Zeng H, Joo M, Everhart MB, Sherrill TP, Li B, Cheng DS, Yull FE, Christman JW, Blackwell TS, **Targeted immunomodulation of the NF-kappaB pathway in airway epithelium impacts host defense against Pseudomonas aeruginosa.** Journal of immunology (Baltimore, Md. : 1950), 2006 Apr 15;176(8):4923-30
45. Everhart MB, Han W, Parman KS, Polosukhin VV, Zeng H, Sadikot RT, Li B, Yull FE, Christman JW, Blackwell TS, **Intratracheal administration of liposomal clodronate accelerates alveolar macrophage reconstitution following fetal liver transplantation.** Journal of leukocyte biology, 2005 Feb;77(2):173-80
46. Sadikot RT, Zeng H, Yull FE, Li B, Cheng DS, Kernodle DS, Jansen ED, Contag CH, Segal BH, Holland SM, Blackwell TS, Christman JW, **p47phox deficiency impairs NF-kappa B activation and host defense in Pseudomonas pneumonia.** Journal of immunology (Baltimore, Md. : 1950), 2004 Feb 1;172(3):1801-8
47. Chen JX, Zeng H, Chen X, Su CY, Lai CC, **Induction of heme oxygenase-1 by Ginkgo biloba extract but not its terpenoids partially mediated its protective effect against lysophosphatidylcholine-induced damage.** Pharmacological research, 2001 Jan;43(1):63-9

PRESENTATIONS

Platform Presentations, DEFICIENCY OF SIRTUIN3 DISRUPTS ENDOTHELIAL GLUCOSE METABOLISM AND SENSITIZES PRESSURE OVERLOADINDUCED HEART FAILURE, AHA Scientific sessions, philadelphia, PA, 11/2019

Platform Presentations, Role of p53 acetylation in mediating myocardial angiogenesis and diabetic cardiomyopathy. AHA BCVS meeting, Boston, MA, 08/2019

Poster Presentation, Deficiency of sirtuin 3 accentuates angiotensin ii-induced arterail stiffness/myocardial fibrosis and hypertension, Experimental Biology, Orlando, Florida, 04/2019

Platform Presentations, regulatory role of endothelial sirt3 on blood pressure and diastolic dysfunction in a female mice, AHA council on hypertension, Chicago, IL, 09/2018

Poster Presentation, ablation of endothelial sirt3 exacerbates pressure overload-induced heart failure, AHA BCVS meeting, San Antonio, 08/2018

Platform Presentations, Sirtuin 3 attenuates diabetic cardiomyopathy via suppression of p53 acetylation and regulating cardiomyocyte metabolism, Experimental Biology, San Diego, 04/2018

Poster Presentation, Deletion of endothelial Sirt3 causes diastolic dysfunction, AHA council on hypertension, San Francisco, CA, 09/2017

Poster Presentation, Treatment with Prolyl Hydroxylase Inhibitor Reverses Pre-Existing Diastolic Dysfunction in the Aged SIRT3 Knockout Mice, EB meeting, Chicago, 04/2017

Poster Presentation, Deletion of Endothelial Sirt3 Causes Coronary Microvascular Dysfunction and HFpEF., Experimental Biology, San Diego, CA, 04/2016

Poster Presentation, Sirt3 regulates oxygen sensors and blood vessel formation in the heart., AHA, New Orleans, LA, 09/2013

Platform Presentations, Sirt3 is essential for apelin-gene therapy mediated cardiac repair in post-myocardial infarction of diabetes., AHA meeting, New Orleans, 09/2013

Poster Presentation, SIRT3 Deficiency Impairs Hypoxic Signaling, Reprograms Basal Glycolytic Metabolism and Exacerbates Myocardial Ischemic Injury, Experimental Biology, Boston, MA, 04/2013

Poster Presentation, Apelin-13 Increases Myocardial Progenitor Cells and Improves Myocardial Remodeling of Post-myocardial, AHA meeting, New Orleans, 09/2012

Poster Presentation, Apelin Reduces Myocardial Infarction Size and Promotes Angiogenesis by Increasing SDF-1/CXCR4 and AKT/eNOS/VEGF pathways, AHA meeting, Dallas, 07/2012

Poster Presentation, Regulation Of Sirt3 And Autophagy By Bone Marrow Cells Therapy Improves Cardiac Repair In Post-myocardial Infarction Mice, AHA meeting, Dallas, 07/2012

Poster Presentation, Ang-1 reduces myocardial infarction via upregulation of SDF-1/CXCR4 and recruiting hematopoietic progenitor cells in the diabetic db/db mouse model., AHA meeting, Orlando, FL, 11/2011

Platform Presentations, Hypoxia/reoxygenation-induced myocardial angiogenesis: Role of NADPH oxidase derived reactive oxygen species (ROS), AHA meeting, CIRCULATION 114: 155-155; 2006., AHA meeting, Chicago, 11/2006

Poster Presentation, Role of NADPH oxidase-derived reactive oxygen species (ROS) in angiotensin-1-induced angiogenesis, FASEB JOURNAL 18: A385-A385; 2004., EB meeting, Washington DC, 03/2004

STUDENTS SUPERVISED

2019 Fall Research Advisor, Advised: Ubong S Ekperikpe

2019 - Fall Research Advisor, Advised: Nathan E campbell

2018 - 2020 Supervised Research, The role of pericyte in hypertensive heart failure
Advised: Dr. Han Su (PhD Student)

2017 - Fall Research Advisor, Advised: Sumit Sontakke

2014 - 2015 Research Advisor, The role of mitochondrial oxidative stress in the
pathophysiology of Preeclampsia
Advised: Venkata Ramana Vaka

2012 - 2017 Research Advisor, The Role of Endothelial SIRT3 in Cardiac Hypertrophy
and Heart Failure
Advised: Dr. Xiaochen He (PhD student)

2020- present Research Advisor, The Role of cardiomyocyte SIRT3 in Cardiac
mitochondrial ferroptosis and Heart Failure
Advised: Aubrey C Cantrell (PhD student)

POST-DOC FELLOWSHIP TRAINING

10/2011 - 01/2020 Research Advisor, 12 fellows supervised