

Curriculum Vitae

ZhenJiang Yang, MD, PhD

Marital Status: Married. Spouse's name: Shen, Wangzhen. Child: One son

Home Address: 904 Leblanc CT
Nashville, TN 37221
Cell phone: (615) 715-2203
e-mail:zjyang@comcast.net

Business Address: Clinical Pharmacology
Vanderbilt University, School of Medicine
561 Preston Research Building
23 rd Ave south @ Pierce Ave
Nashville, TN 37232
Business Phone: 615-936-1514
Fax: (615) 322 - 4707
e-mail:Zhenjiang.yang@vanderbilt.edu

EDUCATION:

- 1994 -1998 **Ph. D.** Neurobiology. Shanghai Institute of Neuroscience
Chinese Academy of Sciences. P. R. China. Advisor: Dr.
Eh Shen. Thesis: Nitric Oxide induced Fos expression in
magnocellular neurons in the supraoptic nucleus by
microinfusing sodium nitroprusside into SON.
- 1991 -1994 **M. S.** Neuroscience. Xinjiang Medical University, P. R. China.
Advisor: Dr. Bai, Chairman. Thesis: The fiber connections
between orthotopic entorhinal grafts and host brain tissue.
- 1978 -1983 **M. D.** Medicine. Xinjiang Medical University, P. R. China.

ACADEMIC APPOINTMENTS:

- 1983-1988: Teaching and Research Assistant,
Department of Human Anatomy and Neurobiology, Xinjiang
Medical University (China). Advisor: Dr. Ke, Chairman.
- 1988-1998: Lecture,
Department of Human Anatomy and Neurobiology, Xinjiang
Medical University (China). Advisor: Dr. Ke, Chairman.
- 1998- 2000: Postdoctoral Research Associate,
Department of Biology Georgia State University, Atlanta, GA.
Advisor: Dr. Chun Jiang.
- 2000 –2003: Research Fellow,
Clinical Pharmacology. Vanderbilt University, Nashville, TN.
Advisor: Dr. Katherine T. Murray
- 2003-2008 Research Instructor,
Clinical Pharmacology. Vanderbilt University, Nashville, TN.

Advisor: Dr. Katherine T. Murray

- 2009- 2010 Scientist Specialist,
Clinical Pharmacology. Vanderbilt University, Nashville, TN.
Advisor: Dr. Katherine T. Murray
- 2010-2015 Research Assistant Professor of Medicine
Clinical Pharmacology. Vanderbilt University, Nashville, TN.
Advisor: Dr. Katherine T. Murray
- 2015-2016 Adjunct Research Assistant Professor of Medicine
Clinical Pharmacology. Vanderbilt University, Nashville, TN.
Advisor: Dr. Katherine T. Murray
- 2016-Present Research Assistant Professor of Medicine
Clinical Pharmacology. Vanderbilt University, Nashville, TN.
Advisor: Dr. Katherine T. Murray

HONORS AND AWARDS:

American Heart Association Fellowship, 7/1/2003 - 6/30/2005.

PROFESSIONAL ORGANIZATIONS:

Biophysical Society membership.

American Heart Association membership.

Society for Neuroscience

Chinese Society of Neuroscience and Chinese Medical Society

PROFESSIONAL ACTIVITIES:

TEACHING:

- 1983-1988: Teaching and Research Assistant, Human Anatomy, Department of Human Anatomy and Neurobiology, Xinjiang Medical University (China).
- 1988-1994: Lecture, Human Anatomy, Department of Human Anatomy and Neurobiology, Xinjiang Medical University (China).

PUBLICATIONS:

- A, Original Investigations
1. Murphy BM, **Yang Z**, Subati T, and Murray KT. Reactive lipid dicarbonyls mediate the arrhythmogenic effects of pro-inflammatory cytokines. JACC: Basic to Translational Science American College of Cardiology, submitted.
 2. **Yang Z**, Subati T, Kim K, Murphy BM, Dougherty OP, Van Amburg JC, Woodall KK, Barnett JV, and Murray KT. Natriuretic Peptide Oligomers Cause

- Proarrhythmic Metabolic and Electrophysiologic Effects in Atrial Myocytes. *Circ Arrhythm Electrophysiol.* 2022 Feb 25. Vol.15, No. 3:195-208
3. **Yang Z**, Murray KT. Azithromycin Causes a Novel Proarrhythmic Syndrome. *Circ Arrhythm Electrophysiol.* 2017Apr;10(4):e003560.
 4. **Yang Z**, Murray KT. Ionic Mechanisms of Pacemaker Activity in Spontaneously-contracting Atrial HL-1 Cells. *J Cardiovasc Pharmacol* 2010. 57(1):28-36.
 5. Mace LC, Yermalitskaya LV, **Yang Z**, Morgan AM, Murray KT. Transcriptional remodeling of rapidly stimulated HL-1 atrial myocytes exhibits concordance with human atrial fibrillation. *J Mol Cell Cardiol.* 2009 Oct;47(4):485-92. Epub 2009 Jul 15.
 6. **Yang Z**, Browning CF, Hallaq H, Yermalitskaya L, Esker J, Hall MR, Link AJ, Ham AL, McGrath MJ, Mitchell CA, Murray KT. Four and a Half LIM Protein 1: A Partner for KCNA5 in Human Atrium. *Cardiovas. Res.* 2008 Jun 1;78(3):449-57. Epub 2008 Feb 15.
 7. Murray KT, Mace LC, **Yang Z**. Nonantiarrhythmic drug therapy for atrial fibrillation. *Heart Rhythm.* 2007 Mar; 4(3 Suppl):S88-90. Epub 2006 Dec 22.
 8. Hallaq H, **Yang Z**, Viswanathan PC, Fukuda K, Shen W, Wang D, Wells, KS Zhou J, Yi J and Murray KT. Quatitation of protein kinase A-mediated trafficking of cardiac sodium channels in living cells. *Cardiovas. Res.* 2006 Aug 72:250-261.
 9. **Yang Z**, Shen WZ, Rottman JN, Wikswo JP, Murray KT. Rapid stimulation causes electrical remodeling and increased automaticity in cultured atrial myocytes. *Journal of Molecular and Cellular Cardiology*, 2005 Feb; 38(2):299-308.
 10. Wu J, Xu H, **Yang Z**, Wang Y, Mao J, Jiang C. Protons activate homomeric kir6.2 channels by selective suppression of the long and intermediate closures. *J. Membr. Biol.* 2002; 190:105-16.
 11. Xu H, Cui N, **Yang Z**, Wu J, Giwa LR, Abdulkadir L *et al.* Direct activation of cloned K_(ATP) channels by intracellular acidosis. *J.Biol.Chem.* 2001; 276:12898-902.
 12. Xu H, **Yang Z**, Cui N, Chanchevalap S, Valesky WW, Jiang C. A single residue contributes to the difference between Kir4.1 and Kir1.1 channels in pH sensitivity, rectification and single channel conductance. *J. Physiol* 2000; 528 Pt 2:267-77.
 13. Xu H, **Yang Z**, Cui N, Giwa LR, Abdulkadir L, Patel M *et al.* Molecular determinants for the distinct pH sensitivity of Kir1.1 and Kir4.1 channels. *Am.J.Physiol Cell Physiol* 2000; 279:C1464-C1471.
 14. **Yang Z**, Xu H, Cui N, Qu Z, Chanchevalap S, Shen W *et al.* Biophysical and molecular mechanisms underlying the modulation of heteromeric Kir4.1-Kir5.1 channels by CO₂ and pH. *J.Gen.Physiol* 2000; 116:33-45.

15. Xu H, Cui N, **Yang Z**, Qu Z, Jiang C. Modulation of kir4.1 and kir5.1 by hypercapnia and intracellular acidosis. *J.Physiol* 2000; 524 Pt 3:725-35.
16. Chanchevalap S, **Yang Z**, Cui N, Qu Z, Zhu G, Liu C *et al.* Involvement of histidine residues in proton sensing of ROMK1 channel. *J.Biol.Chem.* 2000; 275:7811-17.
17. Qu Z, **Yang Z**, Cui N, Zhu G, Liu C, Xu H *et al.* Gating of inward rectifier K⁺ channels by proton-mediated interactions of N- and C-terminal domains. *J.Biol.Chem.* 2000; 275:31573-80.
18. **Yang Z**, Jiang C. Opposite effects of pH on open-state probability and single channel conductance of kir4.1 channels. *J.Physiol* 1999; 520 Pt 3:921-27.
19. Qu Z, Zhu G, **Yang Z**, Cui N, Li Y, Chanchevalap S *et al.* Identification of a critical motif responsible for gating of Kir2.3 channel by intracellular protons. *J.Biol.Chem.* 1999; 274:13783-89.
20. **Yang Z**, Shen, E. Properties and function of the Ca²⁺-activated potassium current in neuron. *Progress in Physiological Sciences.*1998 29(2): 155-158.
21. **Yang Z**, E. Shen 1998. Nitric Oxide induced Fos expression in magnocellular neurons in the supraoptic nucleus by microinfusing sodium nitroprusside into SON. *Acta Anatomy Sinica.* 102, 51-57.

B. Abstracts:

1. **Yang Z**, Murphy MB, Subati T, Van Beusecum JP, Smart CD, Pitzer AL, Kirabo A, Madhur MS, Barnett JV, Roden DM, Murray KT. Highly reactive isolevuglandins mediate cytokine-induced electrical remodeling to promote atrial fibrillation. *Heart Rhythm* 2022, Abstract # 22-AS-5583-HRS.
2. **Yang Z**, Subati T, Christopher IL, Van Amburg JC, Murphy MB, Murray KT. Metabolic and Electrophysiological Alterations Underlie Proarrhythmic Properties of Highly Reactive Isolevuglandins in Atrial Cardiomyocytes, American Heart Association Scientific Session Nov 13-17, 2020.
3. Murphy MB, Subati T, **Yang Z**, Barnett JV, Roden DM, Murray KT. The Reactive Lipid Mediators Isolevuglandins Promote Atrial Fibrillation Mediated by Inflammation, American Heart Association Scientific Session Nov 13-17, 2020.
4. **Yang Z**, Pedchenko VT, Stark JM, Barnett, JV and Murray, KT. 2018 Mutant Atrial Natriuretic Peptide Accelerates Protein Misfolding and Oligomerization, Causing Cytotoxicity and Proarrhythmic Electrophysiologic Effects in Atrial Cells *Circulation* Volume 138, Issue Suppl_1, Abstract 14911.
5. **Yang Z**, Browning, C M. Murray KT. Four and a half Lim domain protein 1 modulates cell surface expression, gating, and extent of slow inactivation for Kv1.5 channels. *Biophysical Journal.* 2007 Biophysical Society Meeting Abstracts. *Biophysical Journal*, Supplement: 92:129a.

6. **Yang Z**, Shen WZ, Hu X, Murray KT. Multiple ionic currents modulate spontaneous automaticity in a cardiac cell line. 2006 Biophysical Society Meeting Abstracts. *Biophysical Journal*, Supplement, 90:20a, Abstract, 131.19-Pos.
7. Lisa C. Mace, **Yang Z**, Xinran Hu, Katherine T. Murray, Electrical remodeling in rapidly-stimulated, isolated canine atrium. 2006 Biophysical Society Meeting Abstracts. *Biophysical Journal*, Supplement, 90:20a, Abstract, 131.19-Pos.
8. Hallaq H, **Yang Z**, Viswanathan PC, Fukuda K, Shen WZ, Hu X, Wang ZF, Brifkani Z, Wells KS, Zhou JS, Yi JX, Murray KT. Quantization of Protein Kinase A-Mediated Trafficking of Cardiac Na⁺ channels in Living Cells. 2006 Biophysical Society Meeting Abstracts. *Biophysical Journal*, Supplement, 90: 20a, 97-Platform.
9. Lisa C. Mace, Y Yi, Xinran Hu **Yang Z**, Katherine T. Murray, Cellular remodeling in rapidly-stimulated atrial myocytes and tissue. *The FASEB Journal* 20:A321, 2006.
10. **Yang Z**, Wangzhen Shen, Jeffrey N. Rottman, John P. Wikswo, Katherine T. Murray, Rapid stimulation modulates ionic currents and beat rate in cultured atrial cells. 48th Biophysical Annual Meeting Biophysics. J 85: 524a 2004.
11. **Yang Z**, Shen WZ, Rottman J, Murray KT. Rapid stimulation causes electrical remodeling in cultured atrial cells. 47th Biophysical Annual Meeting Biophys. J 84:425a 2003.
12. **Yang Z**, H Xu, N. Cui and C jiang. Modulation of Heteromeric KIR4.1-KIR5.1 Channels BY CO₂ and pH. Program#:154.7. 30th Neuroscience Annual Meeting. Abstracts of Society for Neuroscience 26:2000.
13. Xu H, **Yang Z**, N. Cui and C jiang. Identification of residues determining the distinct pH sensitivity of Kir1.1 from Kir4.1. Program#:154.6. 30th Neuroscience Annual Meeting. Abstracts of Society for Neuroscience 26:2000.
14. **Yang Z**, S. Chanchevalap, N. Cui, Z Qu and C Jiang. Histidine residues in Co₂ and pH sensing of Romk1 channel. 29th Neuroscience Annual Meeting. Abstracts of Society for Neuroscience 25:1999.
15. Qu Z, **Yang Z**, N Cui, G Zhu, Y Li, and C Jiang. Kir2.3 gating by proton-dependent interactions of N- and C-terminal domains. 29th Neuroscience Annual Meeting. Abstracts of Society for Neuroscience 25: 1999.