CURRICULUM VITAE

Lakshmi Pulakat, Ph.D., M.Phil.

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EDUCATIONAL AND PROFESSIONAL HISTORY

Education

Ph.D.	1989	Russell Grimwade School of Biochemistry, University of Melbourne, Australia Advisors: **Dr. Alan Hillier and Dr. Barry Davidson**
Post-Doctoral Fellow:	1990-1993	Department of Molecular Biology and Biochemistry & Department of Neurobiology and Behavior University of California at Irvine, California. Laboratory of Cellular and Molecular Neurobiology **Advisor: Prof. Ricardo Miledi** **Distinguished Professor and National Academy Member**

Academic Positions

9/2009-Present	Professor of Medicine, Department of Medicine, University of Missouri, Columbia MO.
12/2009-Present	Research Health Scientist, Harry S. Truman Memorial Veterans Hospital, Columbia MO
9/2010-Present	Professor, Nutrition and Exercise Physiology, University of Missouri, Columbia MO
3/2013-Present	Adjunct Professor, Medical Pharmacology and Physiology, University of Missouri, Columbia MO.
2015-Present	Researcher, Dalton Cardiovascular Research Center, University of Missouri, Columbia MO.
2005-2009	Professor of Chemistry and Biological Sciences, Department of Chemistry and Department of Biological Sciences, Mississippi State University, Mississippi State, Mississippi.
2004-2005	Professor, Department of Biological Sciences, Bowling Green State University, Bowling Green, Ohio.
2000-2004	Associate Professor, Department of Biological Sciences, Bowling Green State University, Bowling Green, Ohio.
1995-2000	Assistant Professor, Department of Biological Sciences, Bowling Green State University, Bowling Green, Ohio.
1993-1995	Research Associate, Department of Biological Sciences, Bowling Green State University, Bowling Green, Ohio.

Academic Committees

2018-Present	Translational Precision Medicine Center (TPMC) Cardiovascular Emphasis Area Working Group, University of Missouri Systems

2018-Present	Promotion and Tenure Committee, Department of Medicine, UM-Columbia
2015-2018:	UM School of Medicine Research Council Member
2015- 2017:	University of Missouri System Research Board Life Sciences Subcommittee Convener
2015-2017:	University of Missouri Faculty Development Advisory Committee
2015-2016:	Member of Missouri Foundation for Veterans Medical Research Board
2014:	Ad hoc member for NIH Hypertension and Microcirculation (HM) Study Section
2013-2016:	Promotion and Tenure Committee, Department of Medicine, UM-Columbia
2013-2016:	Diversity Committee, Department of Medicine, UM-Columbia
2013-Present:	University of Missouri System Research Board Member
2008-2013:	American Heart Association Molecular Signaling Review Committee Member
2012:	Department of Nutrition and Exercise Physiology Faculty Search Committee
2011-Present:	Alternate for University of Missouri Institutional Biosafety Committee
2011-2012:	VA Merit Review Committee (Endocrinology A)
2010-Present:	Harry S. Truman VA Hospital Subcommittee for Research Safety
2006-2009:	MSU Institutional Animal Care and Use Committee (IACUC),
2006-2009:	MSU Neurocognitive Science and Technology Institute Fellow,
2006-2009:	MSU Digital Biology Group Member,
2006-2009:	MSU Life Sciences and Biotechnology Institute Task Force
2006-2009:	MSMS-MSU dual research program advisor
2009-2009:	MSU Arts and Science Faculty Senate
2006-2007:	MSU Department of Biological Sciences Seminar coordinator,
2001-2004:	Ohio Academy of Sciences State Science Day Judge
2003-2005:	American Society of Microbiology, Ohio Branch Executive Committee Member
2005:	Member of BGSU Faculty Search Committee for Signal Transduction Position
2004-2005:	Biology Building Committee for New Science Building Member
2003-2004:	BGSU Dept. Biology Curriculum Committee Member
2001-2004:	BGSU Dept. Biology Seminar Committee Member
1999-2004:	BGSU Dept. Biology Animal Care Committee Member

Membership of Professional/Scientific Organizations

Life member of Ohio Academy of Sciences
Elected Fellow of Ohio Academy of Sciences
2010-Present: Member of American Heart Association
2010-Present: Member of High Blood Pressure Research Council
2010-Present: Member of American Society for Biochemistry and Molecular Biology
2014-Present: Member of American Physiology Society
2015-2016: Member of Obesity Society

Manuscripts Reviewed: Diabetes, Proc. Natl. Acad. Sci., Expert Review of Clinical Immunology, Trends in Endocrinology and Metabolism, Molecular and Cellular Endocrinology, Clinical and Translational Sciences, Journal of Cardiovascular Medicine, Genetica, PLOS One, Regulatory Peptides, Peptides, J. Bacteriology, AJP Renal Physiology, Cardiorenal Medicine, Current Research Cardiology, Hemodialysis International, Life Sciences, Molecular and Cellular Endocrinology, Nature Scientific Reports, Frontiers in Pharmacology, Frontiers in Physiology

GRANTS

Current Funding

Agency: NHLBI (expires 2019)
Project No: 1R01HL118376-01
PI. L. Pulakat

Project title: “The role of mTORCI - miR-29 - AT2R axis in over-nutrition related cardiovascular diseases".”
Total Amount: $1,847,418; Effort: 25%

Agency: NHLBI (02/15/2018 – 01/31/2022)
Project No: 1R01HL138988-01A1
MPIs. L. Pulakat (UM-Columbia-Contact) and I. Z. Jaffe (Tufts Medical Center)
Project title: “Mechanisms for Sex Differences in CVD Pathology and Development of a Targeted Therapeutic ".
Total Amount: $ 2,054268: Effort 30%

Agency: Novopyxis
PI: L. Pulakat
Project title: Evaluating the Effect of NP-6A4 on Mitigating Doxorubicin-induced Cardiomyopathy.
Total amount of $250,000 is committed for future work.

Pending

Agency: DoD Peer Reviewed Medical Research Program 2018 - Focused Program Award
PI: L. Pulakat
Project Title: A novel comprehensive approach to expedite wound healing and attenuate multi-drug resistant bacterial infection
Amount Requested: $9,999,646.00; Effort 30%

Agency: NHLBI
MPIs. L. Pulakat (UM-Columbia-Contact) and I. Z. Jaffe (Tufts Medical Center)
Project Title: T1DM-induced Cardiac left ventricular remodeling and development of a targeted therapeutic
Amount Requested: $ $3,021,479; Effort 30%

Completed Research Support

1) Agency: **NHLBI**(7/1/2014-6/30/2016)
   Project No: 3 R01 HL118376-02S1
   PI. L. Pulakat
   Project title: Diversity Research Supplement Award (Graduate student Ms. Kelly Lum-Naihe) for parent Grant 1R01HL118376-01
2) Agency: **NHLBI** (2/1/2014-8/31/2015)
   Project No: 3R01HL118376-01S1
   PI. L. Pulakat
   Project title: Diversity Research Supplement Award (Post-baccalaureate student Mr. Christin Luck) for parent Grant 1R01HL118376-01
3) Agency: **National Institute of Health**
   PI: R. C. Speth (2009-2011)
   Project Title: Brain Specific non-AT1, non-AT2 angiotensin binding sites
   Role: Collaborator
4) Agency: **NHLBI**
   Project No: HL060241-02:
   Lakshmi Pulakat (PI) (2003-2007)
   Project title: " Signaling Mechanisms of Angiotensin II receptor AT2’”
5) Agency: **NHLBI**

Project No: HL60241-01
Lakshmi Pulakat (PI) (1998- 2002)
Project Title: 'Molecular studies on Angiotensin II receptor subtype AT2'

6) Agency: **National Science foundation**
PI: L. Pulakat (2009-2013)
Project title: Genetic analysis of the differential effects of NifM, a PPIase, on its substrates.

7) Agency: **National Science Foundation**
Project No: MCB-0118992:
Lakshmi Pulakat (Co PI) (2004-2008)
Project title: "Genetic Analysis of the NifM"

8) Agency: **Department of Energy**
Project No: DE-FG36-06G086025:
Lakshmi Pulakat (CoI) (2006-2008)
Project title: "Renewable Hydrogen Production from Biorefinery Co-products and Effluents."

9) Agency: **Department of Defense**
Project No: BC996085 Lakshmi Pulakat (PI)
Department of Defense Concept Award (2001-2003)
Project Title: Exploration of the Regulation of Breast Cancer by the Angiotensin II Receptor AT2

10) Agency: **Integrative Enzymatics**
PI: L. Pulakat (2012-2013)
Project Title: Evaluating the response of Zucker Diabetic Fatty rat to treatment with a novel IgE-blocking peptide drug.

11) Agency: **Forest Laboratories**:
PI: L. Pulakat (2010-2012)
Project Title: Effects of Nebivolol on Insulin signaling in Human Endothelial and Proximal Tubule Cells: Amelioration of Ang II and Aldosterone Induced Oxidative Stress.

12) Agency: **Novartis Pharmaceuticals**
PI: Whaley-Connell (2008-2011)
Project title: Impact of Direct Renin Inhibition and AT_1R blockade on Cardiovascular and renal abnormalities associated with Insulin Resistance in Ren2 Rats: A combinatorial strategy that targets the Cardiometabolic Syndrome
Role: Co-PI

13) Agency: **Ohio Cancer Research Associates**
Ohio Cancer Research Associates Award
Lakshmi Pulakat (PI) (2001-2003)
Project Title: AT-mediated Regulation of the ErbB2/3 in Breast Cancer

14) Agency: **American Heart Association**
Project No: AHA 9960357V.
Lakshmi Pulakat (PI) AHA Research Award (1999-2001)
Project Title: Characterization of an Angiotensin II receptor AT2-interacting Na^+/H^+ exchanger

15) Agency: **The Ohio Plant Biotechnology Consortium**
Project No: OBRG1

Lakshmi Pulakat (CoI)
The Ohio Plant Biotechnology Consortium Award: 1999-2002
Project Title: Expression of the Fe-protein of nitrogenase in chlamydomonas chloroplast system

PROFESSIONAL EXPERIENCE

- 2016-Present American Heart Association Molecular Signaling II Peer Review Committee
- 2016-Present NHLBI Loan Repayment Program Review Committee
- 2018-Present Academic Editor: PLOS ONE
- 2018 November 30th. Invited speaker, MCRI at Tufts Medical Center
- 2016 VA National Research Day Speaker, May 19th 2016, Columbia, MO.
- Invited Speaker for 14th International Conference on Clinical and Experimental Cardiology, November 14th, 2016, Orlando, FL.
- 2015 MU Top Faculty Achiever Recognition.
- 2015 Women's Leadership Development Workshop Participant.
- 2013-2014 Alumni Association Student Board MU - Mizzou 39' Mentor Recognition.
- 2012-2013 Excellence in Education Award, University of Missouri-Columbia Division of Student Affairs.
- Georgetown University –Nephrology and Hypertension Seminar (9/19/2013): Involvement of a common microRNA in diabetes and cardiorenal diseases.
- Creighton University Biomedical Sciences Seminar (11/12/2013): Involvement of a common microRNA in diabetes and cardiovascular diseases.
- MU Nephrology Conference (2/25/2013): MicroRNA modulation of insulin resistance: The miR-29 story.
- MU Medical Pharmacology & Physiology Seminar (2/12/2013): MicroRNA modulation of cardiovascular insulin resistance.
- Angiotensin Gordon Research Conference speaker/presenter, (2008, 2010, 2012, Ventura, Ca., February)
- Seminar speaker, Department of Pharmacology and Physiology, University of Missouri-Columbia (2009, 2013)
- Seminar speaker, Department of Opthalmology, University of Missouri-Columbia (2012)
- Seminar Speaker, Department of Biomedical Sciences, University of Missouri-Columbia (2012)
- External Reviewer for Tenure and Promotion-Department of Biology,2012, Texas A & M University
- Featured speaker, College of Arts and Sciences Research Showcase, MSU, (October 16th 2008)
- Invited speaker, Department of Pharmacology, College of Pharmacy, University of Mississippi (10/4/2007)
- 2006-2007 National Siemens Competition Mentor
- Recipient of 2004 President's Award for Collaborative Research/Creative Work with Graduate Students (Bowling Green State University) (2004)
- Certificate of Appreciation from The Distinguished Thesis Award Committee for Mentoring (Bowling Green State University) (2004)
- Certificate of Appreciation from The Distinguished Dissertation Award Committee for Mentoring (Bowling Green State University) (2001)
- Recipient of 2000 Elliot L. Blinn Award for Faculty-Undergraduate Student Innovative Basic Research/Creative Work (Bowling Green State University) (2000)
- Invited Speaker, Department of Physiology and Functional Genomics, University of Florida, Gainesville, Florida (2000)
- Outstanding Contributor to the Graduate Education (Graduate Student Senate, Bowling Green State University) (1999)
- Invited Speaker, The Ohio Physiological Society 14th Annual Meeting, Miami University, Oxford, Ohio (1999)
- Elected Fellow of Ohio Academy of Sciences (1998-present)

- Department of Biological Sciences Teaching Award (for Superior Performance in Teaching), Bowling Green State University, April 1996
- University of Melbourne Post graduate Scholarship, Melbourne, Australia. (1985-1988).
- National Science Talent Scholarship awarded by the National Council of Educational Research and Training (N.C.E.R.T.), India. (1976-1984).
- First rank in National level entrance examination for M.Phil. Admission in the School of Environmental Sciences, Jawaharlal Nehru University, New Delhi, India. (1981).
- First Prize for Science quiz was awarded in a state level quiz contest in Kerala, India. (1979).
- National Merit scholarship awarded by Government of India for the best performance in S.S.C examination. (1974-1976).

Publications

1. Belenchia A, Gavini MP, Toedebusch R, DeMarco VG, Pulakat L* (2018) Comparison of Cardiac miRNA Transcriptomes Induced by Diabetes and Rapamycin Treatment and Identification of a Rapamycin-Associated Cardiac MicroRNA Signature. ***Oxid Med Cell Longev***. (In Press)
2. Sharma N, Dev R, Belenchia A, Aroor AR, Whaley-Connell A, Pulakat L, Hans C. (2018) Deficiency of IL12p40 Promotes Angiotensin II-Induced Abdominal Aortic Aneurysm. ***ATVB***(In Press)
3. Toedebusch R, Belenchia A, Pulakat L* (2018) Cell-Specific Protective Signaling Induced by the Novel AT2R-Agonist NP-6A4 on Human Endothelial and Smooth Muscle Cells. ***Front Pharmaco***l. 2018 Aug 21;9:928.
4. Toedebusch R, Pulakat L* and Belenchia A (2018) Diabetic cardiomyopathy: impact of biological sex on disease development and molecular signatures. ***Front. Physiol.*** d2018 May 3;9:453
5. Lum-Naihe K, Toedebusch R, Mahmood A, Bajwa J, Carmack T, Kumar SA, Ardhanari S, DeMarco VG, Emter CA, Pulakat L. Cardiovascular disease progression in female Zucker Diabetic Fatty rats occurs via unique mechanisms compared to males. ***Sci Rep.*** 2017 Dec 19;7(1):17823
6. Pulakat L and Gavini MP (2017). Stress Response of Nutrient-Starved Cardiovascular Cells. V.R. Preedy, V.B. Patel (eds.), ***Handbook of Famine, Starvation, and Nutrient Deprivation***, DOI 10.1007/978-3-319-40007-5_23-1. Springer International Publishing AG 2017. (Book Chapter).
7. Luck C, Gavini, M, Mahmood A, DeMarco VG, and **Pulakat. L.** (2017) Rapamycin modulates cardiac miRNA networks differentially in healthy and obese rats. ***Oxid Med Cell Longev***. 2017:5724046
8. Dar MA, Gul R, Alfadda AA, Karim MR, Kim DW, Cheung CL, Alharthi NH and Pulakat L, (2017) Size-Dependent Effect of Nanoceria on Their Antibacterial Activity Towards *Escherichia coli*. ***Sci. Adv. Mater***. 2017, Vol. 9, pp. 1248-1253(6)
9. Nistala R, Raja, A. and **Pulakat L.** (2017) mTORC1 inhibitors rapamycin and metformin affect cardiovascular markers differentially in ZDF rats. ***Can J Physiol Pharmacol***. Mar;95(3):281-287.
10. Arnold N, Mahmood A, Ramdas M, Ehlinger P and Pulakat L (2017) Regulation of the cardioprotective adiponectin and its receptor AdipoR1 by salt. ***Can J Physiol Pharmaco***l. Mar;95(3):305-309.
11. Ringling RE, Gastecki ML, Woodford ML, Lum-Naihe, KJ, Grant, RW, **Pulakat L.** (2016) Vieira-Potter VJ, and Padilla J. (2016) Loss of NLRP3 does not protect mice from Western diet-induced adipose tissue inflammation and glucose intolerance ***PLoS One***. 11(9):e0161939

12. Mahmood A and Pulakat L. (2015) Differential Effects of β-Blockers, Angiotensin II receptor blockers, and A Novel AT2R Agonist NP-6A4 on Stress Response of Nutrient-Starved Cardiovascular Cells. ***PLoS One***. 2015 Dec 21;10(12):e0144824.
13. Gul R, Mahmood A, Luck C, Lum-Naihe K, Alfadda AA, Speth RC and **Pulakat L** (2015) Regulation of cardiac miR-208a, an inducer of obesity, by Rapamycin and Nebivolol. ***Obestiy (Silver Spring).*** 2015 Nov;23(11):2251-9
14. Slusarz A and **Pulakat L** (2015) The two faces of miR-29. ***J Cardiovasc Med*** (Hagerstown). 2015 Jul;16(7):480-90.
15. Bender SB, DeMarco VG, Padilla J, Jenkins NT, Habibi J, Garro M, **Pulakat L**, Aroor AR, Jaffe IZ, Sowers JR. (2015) Mineralocorticoid Receptor Antagonism Treats Obesity-Associated Cardiac Diastolic Dysfunction. ***Hypertension***. 2015 May;65(5):1082-8
16. Arnold N, Koppula PR, Gul R and **Pulakat L**. (2014) Regulation of cardiac expression of the diabetic marker microRNA miR-29. ***PLOS One***. 2014 Jul 25;9(7):e103284
17. Erickson CE, Gul R, Blessing CP, Nguyen J, Liu T, **Pulakat L**, Bastepe M, Jackson EK, Andreson BT. (2013) The β-blocker Nebivolol Is a GRK/β-arrestin Biased Agonist. ***PLoS ONE*** 8(8): e71980. doi:10.1371/journal.pone.0071980
18. Nistala R, Andresen BT, **Pulakat L**, Meuth A, Sinak C, Mandavia C, Thekkumkara T, Speth RC, Whaley-Connell AT, Sowers JR. (2013) Angiotensin Type 1 Receptor Resistance To Blockade In The Opossum Proximal Tubule Cell Due To Variations In The Binding Pocket. ***Am J Physiol Renal Physiol***. 2013 Feb 6. 304(8):F1105-13
19. Whaley-Connell A, Habibi J, Rehmer N, Ardhanari S, Hayden MR, Pulakat L, Krueger C, Ferrario CM, DeMarco VG, Sowers JR. Renin inhibition and AT(1)R blockade improve metabolic signaling, oxidant stress and myocardial tissue remodeling. ***Metabolism***. 2013 Jun;62(6):861-72.
20. Gul R, Ramdas M, Mandavia C, Sowers JR and **Pulakat L**. RAS-mediated adaptive mechanisms in cardiovascular tissues: Confounding factors of RAS blockade therapy and alternative approaches. ***Cardiorenal Med***, (4):268-280 (*Featured in MD LINX 2/22/2013*)
21. **Pulakat L**, Aroor AR, Gul R, Sowers JR. Cardiac insulin resistance and microRNA modulators. ***Exp Diabetes Res***. 2012;2012:654904
22. Gul R, DeMarco VG, Sowers JR Whaley-Connell AT and **Pulakat L** (2012). Regulation of over-nutrition induced cardiac inflammatory mechanisms by nebivolol. ***Cardiorenal Med***, 2:225-233
23. Mandavia CH, **Pulakat L**, Demarco V, Sowers JR. Over-nutrition and metabolic cardiomyopathy. ***Metabolism***. 2012 Sep;61(9):1205-10.
24. Whaley-Connell A, Habibi J, Nistala R, Hayden MR, **Pulakat L**, Sinak C, Locher B, Ferrario CM, Sowers JR. Combination of direct renin inhibition with angiotensin type 1 receptor blockade improves aldosterone but does not improve kidney injury in the transgenic Ren2 rat. ***Regul Pept***. 2012 Jun 10;176(1-3):36-44
25. Aroor AR, Mandavia C, Ren J, Sowers JR. and **Pulakat L**. Mitochondria and Oxidative Stress in the Cardiorenal Metabolic Syndrome***. Cardiorenal Med*** 2012;2:87-109
26. Ma L, Gul R, Habibi J, Yang M, **Pulakat L**, Whaley-Connell A, Ferrario CM, Sowers JRNebivolol improves diastolic dysfunction and myocardial remodeling through reductions in oxidative stress in the transgenic (mRen2) rat. ***Am J Physiol Heart Circ Physiol***. 2012 Jun 1;302(11):H2341-51
27. DeMarco VG, Johnson MS, Ma L, **Pulakat L**, Mugerfeld I, Hayden MR, Garro M, Knight W, Britton SL, Koch LG, Sowers JR. Overweight female rats selectively breed for low aerobic capacity exhibit increased myocardial fibrosis and diastolic dysfunction. ***Am J Physiol Heart Circ Physiol***. 2012 Apr 15;302(8):H1667-82.

28. Gavini N., Delacroix S, Harris K and **Pulakat L**. Discovery of Evolutionary Divergence of Biological Nitrogen Fixation and Photosynthesis: Fine Tuning of Biogenesis of the NifH and the ChlL by a Peptidyl-Prolyl Cis/Trans Isomerase (2011) ***Am. J. Biochem. Biotech***. 7. 196-203

29. Habibi, J., DeMarco, V.G., Ma, L., **Pulakat, L**., Rainey, W.E., Whaley-Connell, A.T., Sowers, J.R. (2011) Mineralocorticoid receptor blockade improves diastolic function independent of blood pressure reduction in transgenic model of RAAS over-expression. ***Am J Physiol Heart Circ Physiol***, 300, H148-91

30. **Pulakat, L**., Aroor, A., Gul, R. Sowers, JR (2011). Cardiac Insulin Resistance and microRNA Modulators***.*** ***Exp. Diabetes Res***. Special Issue Pathophysiological Insights into Cardiovascular Health in Metabolic Syndrome. 2012;2012: 654904

31. **Pulakat L**, DeMarco VG, Ardhanari S, Chockalingam A, Gul R, and Sowers JR (2011). Signaling Mechanisms to compensate for cardiovascular abnormalities in over-nutrition. Invited review, ***Am J Physiol-Reg, Int, and Comp Physiol,*** 2011 Oct;301(4):R885-95

32. Hayden MR, Sowers KM, **Pulakat L**, Joginpally T, Krueger B, Whaley-Connell A, Sowers JR. Possible Mechanisms of Local Tissue Renin-Angiotensin System Activation in the Cardiorenal Metabolic Syndrome and Type 2 Diabetes Mellitus. ***Cardiorenal Med***. 2011;1(3):193-210

33. DeMarco, V., Johnson, M, Habibi, J., **Pulakat, L**., Gul, R., Hayden, M. R., Tilmon, R., Dellsperger, K., Weiner, N., Whaley-Connell, A. and Sowers, J. R. (2011). Comparative Analysis of Telmisartan and Olmesartan on Cardiac Function in the TG(mRen2)27 Rat. ***Am J Physiol Heart Circ Physiol***. ***300(1)***:H181-90

34. Habibi, J., Hayden, M. R., Sowers, J. R., **Pulakat, L**., Elliott, D., Tilmon, R., Manrique, C., Lastra, G., DeMarco, V., and Whaley-Connell, A. (2011) Nebivolol attenuates redox-sensitive glomerular and tubular mediated proteinuria in obese rats. ***Endocrinology. 152 (2):*** 659-68

35. Habibi, J., DeMarco, VG., Ma, L., **Pulakat, L,** Rainey WE, Whaley-Connell AT,, and Sowers JR. (2011) Mineralocorticoid receptor blockade improves diastolic function independent of blood pressure reduction in transgenic model of RAAS overexpression. ***Am J Physiol Heart Circ Physiol***. ***300(4)***:H1484-91

36. Manrique, C., Lastra, G., Habibi, J., **Pulakat, L**., Schneider, R., Durante, W., Tilmon, R., Rehmer, J., Hayden, M. R., Ferrario, C. M., Whaley-Connell, A., Sowers, J.R.(2011) Nebivolol improves insulin sensitivity in the TGR(Ren2)27 rat. ***Metabolism. 60(12):***1757-66

37. Whaley-Connell, A**., Pulakat, L.,** DeMarco, VG., Hayden, M.R., Habibi, J., Henriksen, E.J., and Sowers, J.R. (2011) Overnutrition and the Cardiorenal Syndrome: Use of a Rodent Model to Examine Mechanisms. ***Cardiorenal Med.*** 1:23-30

38. **Pulakat, L** DeMarco, VG., Whaley-Connell, A. and Sowers, J. R. (2011). The Impact of Overnutrition on Insulin Metabolic Signaling in the Heart and the Kidney. ***Cardiorenal Med*** 1:102-112

39. Whaley-Connell A, Habibi J, Panfili Z, Hayden MR, Bagree S, Nistala R, Hyder S, Krueger B, Demarco V, **Pulakat L**, Ferrario CM, Parrish A, Sowers JR.(2011) Angiotensin II Activation of mTOR Results in Tubulointerstitial Fibrosis through Loss of N-Cadherin. ***Am J Nephrol***. 34(2):115-125

40. Ren, J., **Pulakat, L**., Whaley-Connell, A. and Sowers, J. R. (2010). Mitochondrial Biogenesis in the Metabolic Syndrome and Cardiovascular Disease.***J. Mol. Med.*** 88:993-1001

41. Reyes, R., **Pulakat, L**., Miledi, R. and Martinez-Torres, A (2009) Mammalian AT2 receptors expressed in *Xenopus laevis* oocytes couple to endogenous chloride channels and stimulate germinal vesicle break down. ***Cellular Physiology and Biochemistry*** 24: 45-52

42. Lahiri, S., **Pulakat, L**. and Gavini, N. (2008) NifH: Structural and mechanistic similarities with proteins involved in diverse biological processes. ***Am. J. Biochem. Biotech.*** 4(3): 304-316

43. **Pulakat, L**., Kolhe, R., Gavini N. (2008) AT1-IR-beta Association: A New Mechanism for the Inhibition of Insulin Receptor Function in Breast Cancer. ***Am. J. Bichem. Biotch.*** 4 (1) 24-34

44. Lahiri, S., **Pulakat, L**. and Gavini, N. (2008) Functional participation of a *nifH-arsA2* chimeric fusion gene in arsenic reduction by *Escherichia coli*. ***Biochem. Biophys. Res. Commun*.,** 368 (2):311-7

45. Lahiri, S., Cole, B., **Pulakat, L.** and Gavini, N. (2007) The NifX Protein is involved in the final stages of FeMo-cofactor transport to the MoFe protein. ***Am. J. Biochem. Biotech.*** 3:96-106.

46. Gavini, N. Tungtur, S. and **Pulakat, L.** (2006) Peptidyl-prolyl *cis/trans* isomerase-Independent Functional NifH Mutant of *Azotobacter vinelandii.* ***J. Bacteriol. 188:***6020-6025.

47. Dong, H., Patil, P., **Pulakat, L**. and Nara Gavini, N. (2006) The Carboxyl Terminus of NifK Protein is Involved in Formation of a Stable Nitrogenase Complex Under Acidic Growth Conditions in *Azotobacter vinelandii.* ***Res. J. Microbiol. 4***:319-329.

48. Raja, K., **Pulakat, L**. and Gavini, N. (2006) Genetic Complementation Studies of Human Pin1 in *Azotobacter vinelandii* Revealed that it Requires Amino Terminus of the NifM to Deliver PPIase Effect to the Fe-protein of Nitrogenase. ***Am. J. Biochem. Biotech. 2***:25-32.

49. **Pulakat, L**., Cooper, S., Knowle, D., Mandavya, C., Bruhl, S. and Gavini N. (2005) Ligand dependent complex formation between the Angiotensin II receptor subtype AT2 and Na+/H+ exchanger in mammalian cells. ***Peptides*** 26:863-873.

50. Lahiri, S., **Pulakat, L.** and Gavini, N. (2005) Functional NifD-K fusion protein in *Azotobacter vinelandii* is a homodimeric complex equivalent to the native heterotetrameric MoFe protein. ***Biochem. Biophys. Res. Comm:*337:677-684**

51. Kosaraju, P., **Pulakat, L.** and Gavini, N. (2005) Analysis of the genome of *Azotobacter vinelandii* revealed the presence of two genetically distinct group II introns. ***Genetica***, 124:107-115.

52. **Pulakat, L**., Rahman, S., Knowle, D. and Gavini, N. (2005) Identification of the region of angiotensin II receptor AT2 involved in cGMP reduction. ***Cellular Signaling***, 17:395-404.

53. **Pulakat, L**., Mandavya, C., and Gavini, N. (2004) Role of Phe308 in the seventh transmembrane domain of the AT2 receptor in ligand-binding and signaling. ***Biochem. Biophys. Res. Comm:*** **319:**1138-1143

54. Suh, M-H., **Pulakat, L**. and Gavini, N. (2003) Functional expression of a fusion-dimeric MoFe-protein of the nitrogenase in *Azotobacter vinelandii*. ***J. Biol. Chem:*** **278:** 5353-5360

55. Kumar, V., Knowle, D., Gavini, N. and **Pulakat, L**., (2002) Identification of the region of AT2 receptor needed for inhibition of the AT1 receptor-mediated inositol 1,4,5-triphosphate generation. ***FEBS Letters: 532***: 379-386

56. **Pulakat, L**., Gray, A., Johnson, J., Knowle, D., Burns, V. and Gavini, N. (2002) Role of C-terminal cytoplasmic loop of the AT2 receptor in ligand binding and signaling. ***FEBS Letters:*** **524:** 73-78

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1. Gavini MP, Mahmood A, Belenchia A, Beauparlant P, Kumar SA, Ardhanari S, DeMarco VG, Pulakat L* (2018) Selective Activation of AT2 Receptor by NP-6A4 Attenuates Heart Disease with Preserved Ejection Fraction. European Heart Journal (To be submitted)
2. Belenchia A, Toedebusch R, Mahmood A, Pulakat L* (2018) NP-6A4, a cardiovascular protective AT2R agonist, regulates the growth of triple-negative and estrogen-positive breast cancer cells by different mechanisms. Cancer Research (To be submitted)

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1. AM Belenchia, P Beauparlant, A. Mahmood, J. Bajwa, Q. Zhang, S. Khare, and **L. Pulakat** (2017) Cardiovascular Protective vs. Anti-Cancer Properties: Novel Actions of the AT2R Agonist, NP-6A4. Physiology – Cardiovascular. FASEB J April 2017 31:lb680
2. P Beauparlant, A. Mahmood, R. Toedebusch, VG DeMarco, S. Ardhanari, S. Kumar, and **L. Pulakat** (2017) Cardiovascular Protective Effects of AT2R Activation by Peptide Drug NP-6A4. Physiology - Physiology of Cardiac Muscle. FASEB J April 2017 31:688.10 (*Barbara A. Horwitz and John M. Horowitz Outstanding Abstract Award from APS*)
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189. J. A. Williamson., **L. Pulakat**., R. P. Schreiner and N. Gavini. (1996) Identification of the O-Specific Antigen Biosynthetic (rfb) Gene Cluster in Azotobacter. 96th General meeting, American Society for Microbiology, May 1996, New Orleans, Louisiana.

190. C. A. Jock., **L. Pulakat** and N. Gavini. (1996) Molecular Cloning of Leader Peptidase I Gene from Azotobacter vinelandii. 96th General meeting, American Society for Microbiology, May 1996, New Orleans, Louisiana.

191. **L. Pulakat**., S-H Lee., E. T. Efuet and N. Gavini. (1996) An In Vivo Method for Chromosome Counting in Prokaryotes. 96th General meeting, American Society for Microbiology, May 1996, New Orleans, Louisiana.

192. S-H Lee., **L. Pulakat**., B. S. Hausman., E. T. Efuet., S. Lei and N. Gavini. (1996) Investigations on the Dilemma of Nitrogen Fixing Characteristics of Azotomonas. 96th General meeting, American Society for Microbiology, May 1996, New Orleans, Louisiana.

193. B. S. Hausman., **L. Pulakat**., S. Lei and N. Gavini. (1996) Ser44 of Nitrogenase Reductase: Characterization and Mutational Analysis. 96th General meeting, American Society for Microbiology, May 1996, New Orleans, Louisiana.

194. E. T. Efuet., M. C. Anguiano., **L. Pulakat** and N. Gavini (1995) Polyploidy in Bacteria: Electron Microscopic Analysis of Nucleic Acid Content in Azotobacter. GLeMA 1995, The Great Lakes Microscopy Conference, October 1995, Toledo, Ohio.

195. **L. Pulakat**., B. S. Hausman., S. Lei., J. A. Williamson., E. T. Efuet., M. M. Miller and N.Gavini (1995) Identification of the Mutation on the Chromosome of Azotobacter vinelandii UW97 that is Responsible for the Nif- Phenotype. Fourteenth Summer Symposium in Molecular Biology on "Chromosomal Control of Gene Expression" August 1995, Penn State University, University Park PA.

196. E. T. Efuet., M. C. Anguiano., **L. Pulakat**., F. Ketema and N. Gavini(1995) Polyploidy in Bacteria: Is it a Myth or a Reality? Fourteenth Summer Symposium in Molecular Biology on "Chromosomal Control of Gene Expression" August 1995, Penn State University, University Park PA.

197. J. A. Williamson., **L. Pulakat**., R. P. Schreiner, E. T. Efuet and N.. Gavini (1995) Identification of the O-Specific Antigen Biosynthetic (rfb) Gene Cluster in Azotobacter. Fourteenth Summer Symposium in Molecular Biology on "Chromosomal Control of Gene Expression" August 1995, Penn State University, University Park PA.

198. **L. Pulakat**., J. A. Williamson, E. T. Efuet, B. S. Hausman and N.. Gavini (1995) Molecular Basis for Nif- Phenotype in Azotobacter vinelandii UW97. 95th General meeting, American Society for Microbiology, May 1995, Washington, DC.

TEACHING

My primary training is in biochemistry and molecular biology. I have taught a large number of undergraduate and graduate courses at BGSU and MSU since I had 40-60% teaching while I worked at these universities. Class sizes for these courses ranged from small (10-15, mostly graduate courses or lab courses) to large (80-100). My classes were rated as some of the best courses taught at the universities I worked and I have received teaching awards or my courses were selected as "Capstone" courses (for example, the Cell Physiology course I developed at MSU). AT UM-Columbia, I served as PBL facilitator for medical students and helped in team teaching etiology of obesity. Several medical students, Fellows and undergraduate honors students have done research/independent study course with me. Their work was presented at national and local meetings that resulted in recognition of their research in my lab with various awards. These research/training efforts are continuously supported by my federal grants.

List of Courses Taught

Problem Based Learning (PBL) Block 4 for Medical Students (taught 8X at UM-Columbia)
Etiology of Obesity (4001/7001 (3 credits: Team-taught course; taught 3X at UM-Columbia)
Reno-microvasculature in hypertension physiology (Team-taught Course, 1X at UM-Columbia)
Survey in Epigenetics (AS 8415; Team Taught Seminar Course, 1X at UM-Columbia)
Bio 4114/6114 (4 Cr.hr) **Cellular Physiology** (taught 5X at MSU: Class size: 40-45)
Bio 4990/6990 (3 Cr. hr) **Neurobiology** (taught 2x at MSU: Class size: 40-45)
Bio 8990 (2 Cr. hr) **Genomics and Drug Discovery** (taught 3Xat MSU: Class size: 10-12)
Bio 8990 (2 Cr. hr) **Proteomics and Metabolic Sy**ndrome (taught 2x at MSU: Class size: 10-12)
Bio.4442/6442 (3 Cr.hr) **Bacterial Genetics** (taught 1x at MSU: Class size: 45)
Bio 8990 (2 Cr. hr) **Nanobiosciences and Cancer** (taught 1X at MSU: Class size: 10-12)
Biol.421/580 (3 Cr.hr) **Molecular Biotechnology Lecture course** (taught 1x at BGSU: Class size: 35)
Biol.400/580 (2 Cr.hr) **Molecular Biotechnology Lab** (taught 1x at BGSU: Class size: 10)
Biol.621 (3 Cr.hr) **Molecular Genetics** I (taught 8x at BGSU: Class size: 10-15)
Biol.623 (3 Cr.hr) **Molecular Genetics II** (taught 8x at BGSU: Class size: 10-15)
Biol.400/580 (3 Cr.hr), **Neurobiology** (taught 6x at BGSU: Class size: 35-45)
Biol.408/501 (3 Cr.hr) **Molecular Biology** (taught 1x at BGSU: Class size: 35)
Biol. 439/582 (3 Cr.hr) **Immunobiology** (taught 6x at BGSU: Class size: 80-100)

Graduate Student Mentoring as Primary Advisor or Co-advisor:

(Committees in which I served as the chair or the studies that were supported by the extramural funding I received are listed. I have served as a member of several other graduate committees for graduate students from my home departments and other departments, however, for brevity they are not included here)

1). *Jeff Williamson*

Thesis Title: The identification of the Lipopolysaccharide (LPS) specific *rfb*G gene in *Azotobacter vinelandii*
Graduation: 5/96; **MS**

2). *Carissa Jock*
Thesis Title: The Identification and sequence analysis of the *lep* gene of *Azotobacter*
Graduation: 12/96; **MS**

3). *Amha Tadesse*
Thesis Title: Molecular characterization of the ligand binding of Angiotensin receptor subtype AT2 by site-directed mutagenesis.
Graduation: 5/97; **MS**.

4). *Sameera Ahmed*
Thesis Title: The identification of proteins that can interact with Angiotensin II receptor subtype AT2.
Graduation: 5/97; **MS**

5). *Michelle Miller*
Thesis Title: Genetic analysis of mutations in the second domain of nitrogenase reductase
Graduation: 5/97; **MS**

6). *Kenneth Parker*
Thesis Title: Genetic analysis of NifZ interactions
Graduation: 5/97; **MS**

7). *Fassil Ketema*
Thesis Title: Molecular cloning and structure of $tRNA^{Arg}$ and $tRNA^{His}$ genes of *Azotobacter vinelandii*/
Graduation: 5/97; **MS**

8). *Mari Anguiano*
Thesis Title: Polyploidy in *Azotobacter*.
Graduation: 5/97; **MS**

9). *Bryan Hausman*
Thesis Title: Molecular and Genetic Analysis of the *rfb*-Cluster of *Azotobacter vinelandii*. 5/98; **MS**

10). *SaeHong Lee*
Thesis Title: Molecular Investigation of the *nifW* Gene in *Azotobacte vinelandii.*
Graduation: 5/98; **MS**

11). *Ekem T. Efuet*
Dissertation Title: Molecular and Genetic Analysis of Polyploidy in *Azotobacter*.
Graduation: 5/98; **Ph.D**

12). *Jason Dittus*
Thesis Title: Molecular investigations of the Angiotensin Receptor Subtype AT2: The role of the third intracellular domain.
Graduation: 8/98; **MS**

13*). Shannon Cooper*
Thesis Title: Structure-function analysis of the domain spanning the third intracellular loop in the pharmacological properties of the AT2 receptor and identification of a novel signaling mechanism for AT2
Graduation: 8/99; **MS**

14). *Jason Kurfis*

Thesis Title: Mutational Analysis of Conserved Amino Acids in the Second Intracellular and Second Extracellular Loops of the AT2 Receptor
Graduation: 8/00; **MS**

15). *Jana Bostelman*
Thesis Title: Mutational Analysis of the Third Intracellular Loop of the AT2 Receptor
Graduation: 8/00; **MS**

16). *Michael Wallner*
Thesis Title: Characterization of *nifM* mutants in *Klebsiella*
Graduation: 12/00; **MS**

17). *Dieter Knowle*
Dissertation Title: Characterization of Signaling by the Angiotensin II Receptor AT2 (BGSU Distinguished Dissertation Award)
Graduation: 8/01; **Ph. D**

18). *Shiranthi Keppetipola*
Thesis Title: Identification of Proteins that interact with the Angiotensin II Type 2 Receptor
Graduation: 8/01; **MS**

19). *Steve Bruhl*
Thesis Title: Characterization of an interaction of Angiotensin II Receptor AT2
and a Na^+/H^+ Exchanger homologous to Human NHE6
Graduation: 8/01; **MS**

20). *Ghanasham Sarikonda*
Thesis Title: Mutational analysis of the third intracellular loop of the AT2
Graduation: 8/02; **MS**

21). *Chirag Mandavia*
Thesis Title: Structure-Function Relationship and signaling of the AT2
Graduation: 12/03; **MS**

22). *Simi Rahman (Non-Thesis)*
Graduation: 12/03; **MS Plan II**

23). *Nitin Warier*
Thesis Title: A New Substrate for Pertussis Toxin (BGSU Distinguished Thesis Award)
Graduation: 8/04; **MS**

24). *Sucharita Balasubramanyam*
Thesis Title: Regulation of the human breast cancer cells by Angiotensin II receptor AT2
Graduation: 8/04; **MS**

25) *Preeti Patil*
Thesis Title: ORF9 functions as specific ClpX during the biogenesis of the MoFe protein
Graduation: 12/04; **MS**

26) *Vikas Kumar*
Dissertation Title: Membrane Protein Interactions in Angiotensin II signaling (
Graduation: 12/04; **Ph.D.**

25) *Sudhir Tungtur (advisee)*
Thesis Title: P232 and P258 are involved in the NIfM mediated folding of the Fe-protein of Nitrogenase
Graduation: 8/05; **MS**

26) ***Bridget Foster***

Thesis Title: Azotobacter vinelandii UW97: Suppressor mutations as molecular tools for functional analysis of proteins

Graduation: 8/05; **MS**

27) ***Padma Kosaraju***

Thesis Title: Analysis of the genome of *Azotobacter vinelandii* revealed the presence of two genetically distinct group II introns

Graduation: 8/05; **MS**

28) ***Ravindra Kolhe***

Dissertation Title: Angiotensin II-mediated regulation of signal transduction in Metabolic Syndrome and cancer

Graduation: 12/06; **Ph.D.**

29) ***Kelvin Harris Jr.***

Thesis Title: Understanding the NifM dependence of NifH in *Azotobacter vinelandii*: Functional Substitution of NifH by a chimeric NifH-ChlL construct in a NifM$^-$ strain

Graduation: 8/07; **MS**

30) ***Sangeetha Shivaji***

Thesis Title: Functional analysis of a ModC homolog in the Azotobacter vinelandii *nif* gene cluster

Graduation: 8/08; **MS**

31) ***Maya Ramdas***

Dissertation Title: Crosstalk between Angiotensin II receptors and Insulin receptor: A Possible Mechanism for the Co-development of Hypertension and Insulin Resistance.

Graduation: 8/09; **Ph.D.**

32) ***Kelly Lum-Naihe***

Thesis Title: Sex differences in cardiac structure and function of zucker diabetic fatty male and female rats

Graduation: 5/16; **MS**

Mentoring of Post-Doctoral Fellows

2010-2012 August: **Dr. Rukhsana Gul (Ph.D).**
Current position: Assistant Professor at KSU, Saudi Arabia.

2012 Spring: **Dr. Mushtaq Dar (Ph.D).**
Current position: Assistant Professor at KSU, Saudi Arabia

2011-2012: **Dr. Divya Somashekara (Ph.D).**
Current position: Assistant Professor at Manipal University, India.

2014 Spring Semester: **Dr. Anna Slusarz (Ph.D).**
Current position: Assistant Professor of Biology at Stephens College, Columbia, MO.

2016-2018: **Dr. Ryan Toedebusch**
Current position: Research Specialist at UC Davis.

2016-current: **Dr. Anthony Belenchia**

Undergraduate Mentoring:

BGSU, MSU and MU have a large group of enthusiastic undergraduate students who are eager to earn experience in biological research. I have supported several **(over 85)** students to do independent research in my laboratory with the federal and state grant support at BGSU, MSU and MU. These undergraduate students who had worked with me have either continued their education as graduate students or joined Medical School. Their research is published in peer-reviewed international journals and they have received numerous scholarships for their research in my laboratory including the prestigious 'Gold Water' National Scholarship.