

CURRICULUM VITAE

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Education:

PhD (Biotechnology): Central Food Technological Research Institute, Mysore, India
(Degree awarded by University of Mysore), 2007.

MSc (Food Technology): Central Food Technological Research Institute, Mysore, India
(Degree awarded by University of Mysore), 2000.

BSc (Industrial Microbiology): Madurai Kamaraj University, Madurai, India, 1998.

Academic & Professional Appointments:

2016 onwards Assistant Professor, Department of Translational & Vascular Biology, University of Texas Health Science Center, Tyler, TX 75708.

2012 - 2016 Research Assistant Professor at Department of Anesthesiology, Texas Tech University Health Science Center, Lubbock, TX 79430.

2008 – 2012 Research Assistant Professor at Department of Physiology, University of Tennessee Health Science Center, Memphis, TN 38163.

2007 – 2008 Research Associate, Dr. Ashok Aiyar's lab, Department of Microbiology, Immunology and Parasitology, Louisiana State University Health Sciences Center, New Orleans, LA 70112.

2005 – 2007 Postdoctoral Fellow, Dr. Gadiparthi Rao's lab, Dept. of Physiology, University of Tennessee Health Sciences Center, Memphis, TN 38163.

2000 – 2001 Research Officer, Culinary Product Development Department, Unilever Research India, Whitefield, Bangalore, 560066, India.

Publications:

1. Hilgers RH*, **Kundumani-Sridharan V***, Subramani J, Chen LC, Cuello LG, Rusch NJ, Das KC. **2017**. Thioredoxin reverses age-related hypertension by chronically improving vascular redox and restoring eNOS function. *Sci Transl Med.* 9(376): eaaf6094.
2. Subramani J, **Kundumani-Sridharan V**, Hilgers RH, Owens C, Das KC. **2016**. Thioredoxin uses a GSH-independent route to deglutathionylate endothelial nitric-oxide synthase and protect against myocardial infarction. *J Biol Chem.* 291(45):23374-23389.
3. **Kundumani-Sridharan V**, Subramani J, Das KC. **2015**. Thioredoxin activates MKK4-NFκB pathway in a redox dependent manner to control manganese superoxide dismutase gene expression in endothelial cells. *J Biol Chem.* 290:17505–17519.
4. **Kundumani-Sridharan V**, Singh NK, Kumar S, Gadepalli R, Rao GN. **2013**. Nuclear factor of activated T cells c1 (NFATc1) mediates p21-activated kinase 1 (Pak1) activation in the modulation of chemokine-

induced human aortic smooth muscle cell F-actin stress fiber formation, migration and proliferation and injury-induced vascular wall remodeling. **J Biol Chem.** 288:22150-22162.

5. **Kundumani-Sridharan V**, Dyukova E, Hansen DE 3rd, Rao GN. **2013.** 12/15-Lipoxygenase Mediates High-fat Diet-induced Endothelial Tight Junction Disruption and Monocyte Transmigration: a new role for 15(s)-hydroxyeicosatetraenoic acid in endothelial cell dysfunction. **J Biol Chem.** 288:15830-15842.
6. Singh NK, Hansen DE 3rd, **Kundumani-Sridharan V**, Rao GN. **2013.** Both Kdr and Flt1 play a vital role in hypoxia-induced Src-PLD1-PKC γ -cPLA2 activation and retinal neovascularization. **Blood.** 121:1911-1923.
7. Gadepalli R, Singh NK, **Kundumani-Sridharan V**, Heckle MR, Rao GN. **2012.** Novel role of proline-rich nonreceptor tyrosine kinase 2 in vascular wall remodeling after balloon injury. **Arterioscler Thromb Vasc Biol.** 32:2652-2661.
8. Singh NK, **Kundumani-Sridharan V**, Kumar S, Verma SK, Kotla S, Mukai H, Heckle MR, Rao GN. **2012.** Protein kinase N1 is a novel substrate of NFATc1-mediated cyclin D1-CDK6 activity and modulates vascular smooth muscle cell division and migration leading to inward blood vessel wall remodeling. **J Biol Chem.** 287:36291-36304.
9. **Kundumani-Sridharan V**, Van Quyen D, Subramani J, Singh NK, Chin YE, Rao GN. **2012.** Novel interactions between NFATc1 (Nuclear Factor of Activated T Cells c1) and STAT-3 (Signal Transducer and Activator of Transcription-3) mediate G-protein-coupled receptor agonist, thrombin-induced biphasic expression of cyclin D1, with first phase influencing cell migration and second phase directing cell proliferation. **J Biol Chem.** 287:22463-22482.
10. Singh NK, **Kundumani-Sridharan V**, Rao GN. **2011.** 12/15-Lipoxygenase gene knockout severely impairs ischemia-induced angiogenesis due to lack of Rac1 farnesylation. **Blood.** 118:5701-5712. **Received Editorial Comment** (Blood, 118:5367-5369).
11. Singh NK, Wang D, **Kundumani-Sridharan V**, Van Quyen D, Niu J, Rao GN. **2011.** 15-Lipoxygenase-1-enhanced Src-Janus kinase 2-signal transducer and activator of transcription 3 stimulation and monocyte chemoattractant protein-1 expression require redox-sensitive activation of epidermal growth factor receptor in vascular wall remodeling. **J Biol Chem.** 286:22478-22488.
12. Zhang Q, Wang D, Singh NK, Kundumani-Sridharan V, Gadiparthi L, Rao ChM, Rao GN. **2011.** Activation of cytosolic phospholipase A2 downstream of the Src-phospholipase D1 (PLD1)-protein kinase C γ (PKC γ) signaling axis is required for hypoxia-induced pathological retinal angiogenesis. **J Biol Chem.** 286:22489-22498.
13. Zhang Q, Wang D, **Kundumani-Sridharan V**, Gadiparthi L, Johnson DA, Tigyi GJ, Rao GN. **2010.** PLD1-dependent PKC γ activation downstream to Src is essential for the development of pathologic retinal neovascularization. **Blood.** 116:1377-1385. **Received Editorial Comment** (Blood, 116:1194-1196). **Cover Image, Blood,** August 26, 2010; 116 (8).
14. Singh NK, Quyen DV, **Kundumani-Sridharan V**, Brooks PC, Rao GN. **2010.** AP-1 (Fra-1/c-Jun)-mediated induction of expression of matrix metalloproteinase-2 is required for 15S-hydroxyeicosatetraenoic acid-induced angiogenesis. **J Biol Chem.** 285:16830-16843.
15. **Kundumani-Sridharan V**, Niu J, Wang D, Van Quyen D, Zhang Q, Singh NK, Subramani J, Karri S, Rao GN. **2010.** 15(S)-hydroxyeicosatetraenoic acid-induced angiogenesis requires Src-mediated Egr-1-dependent rapid induction of FGF-2 expression. **Blood.** 115:2105-2116.
16. Karpurapu M, Wang D, Van Quyen D, Kim TK, **Kundumani-Sridharan V**, Pulusani S, Rao GN. **2010.** Cyclin D1 is a bona fide target gene of NFATc1 and is sufficient in the mediation of injury-induced vascular wall remodeling. **J Biol Chem.** 285:3510-3523.
17. Potula HS, Wang D, Quyen DV, Singh NK, **Kundumani-Sridharan V**, Karpurapu M, Park EA, Glasgow WC, Rao GN. **2009.** Src-dependent STAT-3-mediated expression of monocyte chemoattractant protein-1 is required for 15(S)-hydroxyeicosatetraenoic acid-induced vascular smooth muscle cell migration. **J Biol Chem.** 284:31142-31155.
18. Cheranov SY, Wang D, **Kundumani-Sridharan V**, Karpurapu M, Zhang Q, Chava KR, Rao GN. **2009.** The 15(S)-hydroxyeicosatetraenoic acid-induced angiogenesis requires Janus kinase 2-signal transducer and activator of transcription-5B-dependent expression of interleukin-8. **Blood.** 113:6023-6033.

19. Chava KR, Karpurapu M, Wang D, Bhanoori M, **Kundumani-Sridharan V**, Zhang Q, Ichiki T, Glasgow WC, Rao, GN. **2009**. CREB-mediated IL-6 expression is required for 15(S)-hydroxyeicosatetraenoic acid-induced vascular smooth muscle cell migration. **Arterioscler. Thromb. Vasc. Biol.** 29:809-815.
20. Zhao T, Wang D, Cheranov SY, Karpurapu M, Chava KR, **Kundumani-Sridharan V**, Johnson DA, Penn JS, Rao GN. **2009**. A novel role for activating transcription factor-2 in 15(S)-hydroxyeicosatetraenoic acid-induced angiogenesis. **J. Lipid Res.** 50:521-533.
21. Norseen J, Thomae A, **Sridharan V**, Aiyar A, Schepers A, Lieberman PM. **2008**. RNA-dependent recruitment of the origin recognition complex. **EMBO J.** 27:3024-3035.
22. **Kundumani-Sridharan V**, Wang D, Karpurapu M, Liu Z, Zhang C, Dronadula N, Rao GN. **2007**. Suppression of activation of signal transducer and activator of transcription-5B signaling in the vessel wall reduces balloon injury-induced neointima formation. **Am. J. Pathol.** 171:1381-1394.
23. Srivastava K, **Kundumani-Sridharan V**, Zhang B, Bajpai AK, Rao GN. **2007**. 15(S)-hydroxyeicosatetraenoic acid-induced angiogenesis requires STAT3-dependent expression of VEGF. **Cancer Res.** 97:4328-4336.
24. Wang D, Liu Z, Li Q, Karpurapu M, **Kundumani-Sridharan V**, Cao H, Dronadula N, Rizvi, F, Bajpai AK, Zhang C, Muller-Newen G, Harris KW, Rao GN. **2007**. An essential role for gp130 in neointima formation following arterial injury. **Circ. Res.** 100:807-816.
25. Kumaresan, N., Sanjay K.R., **Venkatesh, K.S.**, Kadeppagari, R.K., Vijayalakshmi, G. and Umesh-Kumar, S. **2008**. Partially saturated canthaxanthin purified from *Aspergillus carbonarius* induces apoptosis in prostrate cancer cell line. **Appl. Microbiol. Biotechnol.** 80:467-473.
26. Nakkeeran, E., **Venkatesh, K.S.**, Subramanian, R. and Umesh-Kumar, S. **2008**. Purification of *Aspergillus carbonarius* polygalacturonase using polymeric membranes. **J. Chem. Technol. Biotechnol.** 83:957-964.
27. Ravi-Kumar, K., **Venkatesh, K.S.** and Umesh-Kumar, S. **2007**. The 53-kDa proteolytic product of precursor starch-hydrolyzing enzyme of *Aspergillus niger* has Taka-amylase-like activity. **Appl. Microbiol. Biotechnol.** 74:1011-1015.
28. Ravi-Kumar, K., **Venkatesh, K.S.** and S. Umesh-Kumar. **2004**. Evidence that cleavage of the precursor enzyme by autocatalysis caused secretion of multiple amylases by *Aspergillus niger*. **FEBS Lett.** 557:239-242.

Manuscripts in Communication

1. **Kundumani-Sridharan V**, Subramani J, Owens C, Walker T, Wasnick J and Das. **2018**. Short-duration hyperoxia causes genotoxicity in mouse lungs: Protection by volatile anesthetic isoflurane. **Am. J. Physiol. Lung Cell Mol. Physiol.** (Revised manuscript submitted).

Reviews/Book Chapters

1. Das KC, **Kundumani-Sridharan V**, Subramani J. **2018** Role of thioredoxin in age-related hypertension. **Curr Hypertens Rep.** 20(1):6. Review.
2. **Venkatesh, K.S.** & Umesh-Kumar, K. **2005**. Production of pectinases and utilization in food processing. In Food Biotechnology 2nd Edn. Marcel Dekker. New York. Book chapter.

Posters/Oral Presentations in Meetings/Conferences/Symposia:

1. Das, K.C., Wasnick, V., and **Kundumani-Sridharan, V.** Isoflurane inhibits DNA damage signaling in the lungs of mice. *Anesth Analg.* 120, S-312, 2015. **International Anesthesia Research Society Annual Meeting**, March 21-24, 2015. Honolulu, Hawaii, USA.
2. Singh, S., **Kundumani-Sridharan, V.**, Kumar, S., Gadepalli, R. and Rao, G. NFATc1 mediates Pak1 activation in the modulation of chemokine-induced human aortic smooth muscle cell F-actin stress fiber formation, migration, and proliferation and injury-induced vascular wall remodeling. *FASEB J*, 28(1 Supplement), 1158.5, 2014. **Experimental Biology 2014**, April 26-30, 2014. San Diego, CA, USA

3. Das, K.C., **Kundumani-Sridharan, V.**, Walker, T. and Wasnick, J.D. Effect of hyperoxia in conjunction with isoflurane in the expression of oxidative stress response genes in the heart and lungs of mice. *Anesth Analg.* 118, S-74, 2014. **International Anesthesia Research Society Annual Meeting**, March 17-20, 2014. Montreal, Quebec, Canada.
4. Gadepalli, R., Singh, N.K., Kundumani-Sridharan, V., Heckle, M. and Rao, G. Novel Role of Pyk2 in Vascular Wall Remodelling Following Balloon Injury. *Circulation.* 2012, 126:A14160. **American Heart Association 2012 Scientific Sessions and Resuscitation Science Symposium**, November 3-7, 2012, Los Angeles, CA, USA.
5. **Kundumani-Sridharan, V.**, Quyen, D.V., Subramani, J., Singh, N.K., and Rao, G.N. Interaction between NFATc1 and STAT3 is required for thrombin-induced cyclin D1 expression in vascular smooth muscle cells. *FASEB J*, March 29, 782.8, 2012. **Experimental Biology 2012**, April 21-25, 2012. San Diego, CA, USA.
6. Singh, N.K., **Kundumani-Sridharan, V.**, and Rao, G.N. 12/15-Lipoxygenase gene knockout severely impairs ischemia-induced angiogenesis due to lack of Rac1 farnesylation. *FASEB J*, March 26, 26:683.9, 2012. **Experimental Biology 2012**, April 21-25, 2012. San Diego, CA, USA.

Awards/Recognition:

1. **Awarded Junior Research Fellowship and Lectureship** after qualifying all India level competitive examination jointly conducted by **University Grants Commission and Council of Scientific and Industrial Research** to identify young postgraduates motivated towards research in December 1999.
2. **Awarded Senior Research Fellowship** in 2003 for continuation of graduate studies by **University Grants Commission**, New Delhi, India.

Invited Lectures and Seminars:

1. Interaction of NFATc1 and STAT3 in the regulation of cyclin D1 expression and vascular wall remodeling, Department of Physiology, University of Tennessee Health Science Center, Memphis, TN 38120, December 16, 2010.

Membership in Scientific Societies:

1. Member - American Heart Association (2008 – present)
2. Member - American Society for Biochemistry and Molecular Biology (2011 - present)
3. Member - American Society for Microbiology (2006 – present)
4. Member – International Anesthesia Research Society (2014- present)
5. Member - American Association for the Advancement of Science (2015 – present)

Research Support:

Completed Research Support

Texas South Plain Foundation – SPF grant 2015-2016

Endothelial ErbB2 in Myocardial Ischemia-Reperfusion Injury

Goal of this study is to investigate of role ErbB2 in survival of endothelial cells and protection of myocytes during myocardial ischemia reperfusion.

Role: Principal Investigator

R01 EY014856 Gadiparthi Rao (PI) 2009-2012

Phospholipases and retinal angiogenesis

Aim of this study is to investigate the role of phospholipase D and protein kinase C in hyperoxia induced retinal angiogenesis

Role: Co-Investigator

R01 HL103575

Gadiparthi Rao (PI)

2011-2012

GPCR Signaling and vascular wall remodeling

Main focus of this grant is to understand the mechanism by which thrombin activates GRB2-associated binding protein 1 (Gab1) and Src homology 2- containing protein tyrosine phosphatase (Shp2)

Role: Co-Investigator

Reviewer:

1. International Journal of Pharmacy and Pharmaceutical Sciences
2. Toxicology Mechanisms and Methods
3. European Journal of Pharmacology