Dr. SREEDHAR BODIGA
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Dept., of Basic and Social Sciences

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PROFILE SUMMARY:

Dr. SREEDHAR BODIGA is an Associate Professor of Biochemistry with more than 10 years of research and teaching experience in various universities/research institutes in India and abroad. Prior to joining FCRI, he worked as UGC-Assistant Professor under the Faculty Recharge Program) at the Department of Biochemistry, Kakatiya University, Warangal. He has taught Enzymology, Immunology, Plant and Animal Biotechnology, Bioinformatics and Biostatistics courses for M.Sc. Biochemistry students, besides active research in the area of Cardiovascular biology. His studies characterized zinc dyshomeostasis during myocardial ischemia/reperfusion injury and the therapeutic effects of zinc pyrithione (ionophore), along with analysis of ZIP and ZnT expression in cardiomyocytes. His research on endothelial dysfunction with cisplatin delineated the molecular signaling mechanisms, using silencing approach.

He had earlier worked at KL University (Deemed to be), Vaddeswaram as Assistant Professor in the Department of Biotechnology. He has designed, developed curriculum and taught Transgenic Technology and Molecular Expression Technology courses for B.Tech. Biotechnology students. He has also taught Medical Biotechnology for M.Tech. Biotechnology students.

His postdoctoral stint at the Cardiovascular Research Center, University of Alberta with Dr. Gavin Oudit focused on characterizing the role of ACE2 in hypertension and cardiomyopathy using transgenic animal models. His research at the Medical College of Wisconsin involved studies on eicosanoid (EETs and HETEs) signaling in endothelial cells and cardiomyocytes and in vivo models of ischemia/reperfusion injury.

EDUCATIONAL QUALIFICATIONS:

1999 – M.Sc. (Biochemistry), Osmania University, Hyderabad.

2006 – Ph.D. (Biochemistry), National Institute of Nutrition, Hyderabad (ICMR)
Iron and zinc interactions at the site of absorption.

WORK EXPERIENCE:

April 2019 - present
Forest College and Research Institute, Mulugu.

June 2013- March 2019
UGC-Assistant Professor, Department of Biochemistry, Kakatiya University, Warangal

April 2010 – May 2013
Assistant Professor, Department of Biotechnology, KL University (Deemed to be), Vaddeswaram

November 2009 – April 2010
Postdoctoral Fellow, University of Alberta, Edmonton, Canada

November 2006 – October 2009
Postdoctoral Fellow, Medical College of Wisconsin, Milwaukee, USA

January 2004 – October 2006
Research Officer/ Scientist-B, National Institute of Nutrition, Hyderabad (ICMR)

September 2002 – August 2003
Scientist-B, Defense Research and Development Organization (DRDO), posted at Armed Forces Medical College, Pune

TEACHING INTERESTS
Basic and applied biochemistry, Analytical Chemistry, Biostatistics and Bioinformatics.

RESEARCH AREAS
Phytochemical analysis, Medicinal value of plants, Biochemical signaling, Plant-microbe interactions at molecular level.

COURSE TAUGHT
Plant Biochemistry, Principles of plant cytology and genetics, Forest Ecophysiology

FELLOWSHIPS / AWARDS
1999 – UGC-CSIR NET Lectureship (Life Sciences)

1999-2004 – ICMR junior and senior research fellowship to carryout doctoral studies at National Institute of Nutrition.

2009 – Meritorious Abstract, NIEHS Travel Award, Winter Eicosanoid Conference

2009 – Best Oral presentation, Annual Research Retreat, PCCM, MCW-2009

2010 – Alberta Heritage Foundation for Medical Research Fellowship

SCHOLARLY ACTIVITY
JOURNAL PUBLICATIONS

1) Sandhya Thokala, Vijaya Lakshmi Bodiga, Madhukar Rao Kudle, Sreedhar Bodiga. Comparative response of cardiomyocyte ZIPs and ZnTs to extracellular zinc and TPEN. Biol Trace Elem Res Feb 18. doi: 10.1007/s12011-019-01671-0. [Epub ahead of print]
2) Bodiga S, Vemuri PK, Bodiga VL. Low Ctr1p, due to lack of Sco1p results in lowered cisplatin uptake and mediates insensitivity of rho0 yeast to cisplatin. J Inorg Biochem. 2018; 187:14-24.
3) Pallem PVSP, Bodiga S, Bodiga VL. Dietary phytate lowers iron status, suppresses aberrant crypt foci and inhibits progression to adenoma in azoxymethane-induced colon cancer. Int J Pharmacy Biol Sci. 2018; 8:43-55.
4) Bodiga VL, Thokala S, Kovur SM, Bodiga S. Zinc Dyshomeostasis in Cardiomyocytes after Acute Hypoxia/Reoxygenation. Biol Trace Elem Res. 2017 Sep;179(1):117-129. doi: 10.1007/s12011-017-0957-7. Epub 2017 Feb 8.
5) Inapurapu SP, Kudle KR, Bodiga S, Bodiga VL. Cisplatin cytotoxicity is dependent on mitochondrial respiration in Saccharomyces cerevisiae. Iran J Basic Med Sci. 2017 Jan;20(1):83-89. doi: 10.22038/ijbms.2017.8099
6) Thokala S, Inapurapu S, Bodiga VL, Vemuri PK, Bodiga S. Loss of ErbB2-PI3K/Akt signaling prevents zinc pyrithione-induced cardioprotection during ischemia/reperfusion. Biomed Pharmacother. 2017 Apr;88:309-324. doi: 10.1016/j.biopha.2017.01.065. Epub 2017 Jan 21.
7) Bodiga VL, Inapurapu SP, Vemuri PK, Kudle MR, Bodiga S. Intracellular zinc status influences cisplatin-induced endothelial permeability through modulation of PKCα, NF-κB and ICAM-1 expression. Eur J Pharmacol. 2016 Nov 15;791:355-368. doi: 10.1016/j.ejphar.2016.09.013. Epub 2016 Sep 8.
8) Bodiga VL, Kudle M, Bodiga S. Silencing of PKC-α, TRPC1 or NF-kB expression attenuates cisplatin-induced ICAM-1 expression and endothelial dysfunction. Biochem Pharmacol. 2015 Nov 1;98(1):78-91. doi: 10.1016/j.bcp.2015.08.101. Epub 2015 Aug 20.
9) Bodiga VL, Thokala S, Vemuri PK, Bodiga S. Zinc pyrithione inhibits caspase-3 activity, promotes ErbB1-ErbB2 heterodimerization and suppresses ErbB2 downreuglation in cardiomyocytes subjected to ischemia/reperfusion. J Inorg Biochem. 2015 2015 Dec;153:49-59. doi: 10.1016/j.jinorgbio.2015.09.010. Epub 2015 Sep 26.
10) Bodiga VL, Eda SR, Chavali S, Revur NN, Zhang A, Thokala S, Bodiga S. In vitro biological evaluation of glyburide as potential inhibitor of collagenases. Int J Biol Macromol. 2014 Sep;70:187-92. doi: 10.1016/j.ijbiomac.2014.06.054. Epub 2014 Jul 5.
11) Kommuguri UN, Bodiga S, Bodiga VL. Role of mitochondrial respiration in sensitization of copper-deficient yeast to cisplatin-induced toxicity. Front Life Sci. 2013 Vol 7, Issue 3-4,210-217. (IF=0.933). 20 2155-3769
12) Kommuguri UN, Satyaprasad Pallem PV, Bodiga S, Bodiga VL. Effect of dietary antioxidants on the cytostatic effect of acrylamide during copper-deficiency in Saccharomyces cerevisiae. Food Funct. 2014 Apr;5(4):705-15. doi: 10.1039/c3fo60483g. Epub 2014 Feb 14.
13) Uday Kumar Putcha, Sreedhar Bodiga, Neelam Lekki, Vijaya Lakshmi Bodiga. Dietary Citrate Enhances Aluminium Absorption, Tissue Accumulation in Iron-Deficient and Calcium-Restricted Rats. Asia Pacific Journal of Life Sciences 01/2014; 7(2)
14) Vijaya Lakshmi Bodiga, Sreedhar Bodiga. Renin Angiotensin System in Cognitive Function and Dementia. Asian Journal of Neuroscience. Volume 2013 (2013), Article ID 102602, 18 pages.
15) Bodiga VL, Eda SR, Veduruvalasa VD, Mididodla LD, Parise PK, Kodamanchili S, Jallepalli S, Inapurapu SP, Neerukonda M, Vemuri PK, Bodiga S. Attenuation of non-enzymatic thermal glycation of bovine serum albumin (BSA) using β-Carotene. Int. J. Biol. Macromol. 2013 May;56:41-8. doi: 10.1016/j.ijbiomac.2013.01.030. Epub 2013 Feb 4.
16) Bodiga VL, Eda SR, Bodiga S. Advanced glycation end-products- role in pathology of diabetic cardiomyopathy. Heart Fail Rev. 2014 Jan;19(1):49-63. doi: 10.1007/s10741-013-9374-y. Review. (IF=3.2)
17) Pierro M, Ionescu L, Montemurro T, Vadivel A, Weissmann G, Oudit G, Emery D, Bodiga

S, Eaton F, Péault B, Mosca F, Lazzari L, Thébaud B. Short-term, long-term and paracrine effect of human umbilical cord-derived stem cells in lung injury prevention and repair in experimental bronchopulmonary dysplasia. Thorax. 2013 May;68(5):475-84. doi: 10.1136/thoraxjnl-2012-202323. Epub 2012 Dec 4. IF=6.840]

18) Jacobs ER, Bodiga S, Ali I, Falck AM, Falck JR, Medhora M, Dhanasekaran A. Tissue protection and endothelial cell signaling by 20-HETE analogs in intact ex vivo lung slices. Exp. Cell Res. 2012Oct 1;318(16):2143-52. Epub 2012 Jun 9.
19) Patel VB, Bodiga S, Fan D, Das SK, Wang Z, Wang W, Basu R, Zhong J, Kassiri Z, Oudit GY. Cardioprotective Effects Mediated by Angiotensin II Type 1 Receptor Blockade and Enhancing Angiotensin 1-7 in Experimental Heart Failure in Angiotensin-Converting Enzyme 2-Null Mice. Hypertension. 2012 Jun;59(6):1195-203. Epub 2012 Apr 16.
20) Patel VB, Bodiga S, Basu R, Das SK, Wang W, Wang Z, Lo J, Grant MB, Zhong J, Kassiri Z, Oudit GY. Loss of Angiotensin-Converting Enzyme-2 Exacerbates Diabetic Cardiovascular Complications and Leads to Systolic and Vascular Dysfunction: A Critical Role of the Angiotensin II/AT1 Receptor Axis. Circ Res. 2012 May 11;110(10):1322-35. Epub 2012 Apr 3
21) Kommuguri UN, Bodiga S, Sankuru S, Bodiga VL. Copper deprivation enhances cisplatin cytotoxicity in S. cerevisiae by modulating CTR1 and CUP1 expression. Journal of Trace Elements in Medicine and Biology 2012 Jan; 26(1):13-19 Epub 2012 Feb24(In press, IF=2.176, ISSN:0946-672X)
22) Bodiga VL, Bodiga S, Surampudi S, Boindala S, Putcha U, Nagalla B, Subramaniam K, Manchala R. Effect of vitamin supplementation on cisplatin-induced intestinal epithelial cell apoptosis in Wistar/NIN rats. Nutrition 2012 May; 28(5):572-580. Epub 2011 Dec20 (In press, IF=2.726, ISSN:0899-9007)
23) Wang W, Bodiga S, Das SK, Lo J, Patel J, Oudit G. Role of ACE2 in diastolic and systolic heart failure. Heart Fail. Rev. 2011 Jun 3 [Epub ahead of print] (IF=5.865, ISSN:1382-4147)
24) Kasi V, Bodiga S, Kommuguri UN, Sankuru S, Bodiga VL. Zinc pyrithione salvages reperfusion injury by inhibiting NADPH oxidase activation in cardiomyocytes. Biochem Biophys Res Commun 2011 Jul 1;410(2):270-5. Epub 2011 May 27; IF = 2.548, ISSN: 0006-291X)
25) Bodiga S, Wang W, Oudit GY. Use of ginseng to reduce post-myocardial adverse myocardial remodeling: applying scientific principles to the use of herbal therapies. J Mol Med 2011 Apr;89(4):317-320. (IF = 5.004, ISSN: 0946-2716)
26) Danny Guo, Gayatri Thiyam, Sreedhar Bodiga, Zamaneh Kassiri and Gavin Y. Oudit. Uncoupling between enhanced excitation-contraction coupling and the response to heart disease: lessons from the PI3K gamma knockout murine model. Journal of Mol. Cell. Cardiol. 2011 Apr;50(4):606-612. (IF = 4.965, ISSN: 0022-2828)
27) Sreedhar Bodiga, JiuChang Zhong, Wang Wang, Ratnadeep Basu, Jennifer Lo, George C. Liu, Danny Guo, Steven M. Holland, James W. Scholey, Josef M. Penninger, Zamaneh Kassiri, and Gavin Y. Oudit. Enhanced susceptibility to biomechanical stress in ACE2 null mice is prevented by loss of the p47phox NADPH oxidase subunit. Cardiovasc. Res. 2011 Jul 1;91(1):151-161. Epub 2011 Feb 1 (IF = 5.801, ISSN: 0008-6363)
28) Viswanath K, Bodiga S, Balogun V, Zhang A, Bodiga VL. Cardioprotective effect of zinc requires ErbB2 and Akt during hypoxia/reoxygenation. Biometals. (2011) 24: 171-180. (IF = 3.172, ISSN:0966-0844)
29) Bodiga S, Gruenloh SK, Gao Y, Manthati VL, Dubasi N, Falck JR, Medhora M,Jacobs ER. 20-HETE-induced nitric oxide production in pulmonary artery endothelial cells is mediated by NADPH oxidase, H2O2, and PI3-kinase/Akt. Am J Physiol Lung Cell Mol Physiol. 2010 Apr;298(4):L564-74. Epub 2010 Jan 8. (corresponding author) (IF = 4.043, ISSN: 1040-0605)
30) Szabo S, Ghosh SN, Fish BL, Bodiga S, Tomic R, Kumar G, Morrow NV, Moulder JE, Jacobs ER, Medhora M. Cellular inflammatory infiltrate in pneumonitis induced by a single moderate dose of thoracic X radiation in rats. Radiat Res. 2010 Apr;173(4):545-56. (IF = 2.948, ISSN: 0033-7587)
31) Bodiga S, Zhang R, Jacobs DE, Larsen BT, Tampo A, Manthati VL, Kwok WM, Zeldin DC, Falck JR, Gutterman DD, Jacobs ER, Medhora MM. Protective actions of

epoxyeicosatrienoic acid: dual targeting of cardiovascular PI3K and KATP channels. J Mol Cell Cardiol. 2009 Jun;46(6):978-88. (corresponding author, IF = 4.965, ISSN: 0022-2828)

32) Dhanasekaran A, Bodiga S, Gruenloh S, Gao Y, Dunn L, Falck JR, Buonaccorsi JN,Medhora M, Jacobs ER. 20-HETE increases survival and decreases apoptosis in pulmonary arteries and pulmonary artery endothelial cells. Am J Physiol Heart Circ Physiol. 2009 Mar;296(3):H777-86. Epub 2009 Jan 9. (IF =3.712, ISSN: 0363-6135)
33) Medhora M, Chen Y, Gruenloh S, Harland D, Bodiga S, Zielonka J, Gebremedhin D,Gao Y, Falck JR, Anjaiah S, Jacobs ER. 20-HETE increases superoxide production and activates NAPDH oxidase in pulmonary artery endothelial cells. Am J Physiol Lung Cell Mol Physiol. 2008 May;294(5):L902-11. Epub 2008 Feb 22. (IF = 4.043, ISSN: 1040-0605)
34) Bodiga S, Krishnapillai MN. Concurrent repletion of iron and zinc reduces intestinal oxidative damage in iron- and zinc-deficient rats. World J Gastroenterol. 2007 Nov 21;13(43):5707-17. (IF = 2.092)
35) Sreedhar B, Nair KM. Modulation of aconitase, metallothionein, and oxidative stress in zinc-deficient rat intestine during zinc and iron repletion. Free Radic Biol Med. 2005 Oct 15;39(8):999-1008. (IF=6.081)
36) Sreedhar B. Conflicting evidence of iron and zinc interactions in humans: does iron affect zinc absorption? Am J Clin Nutr. 2003 Dec;78(6):1226; author reply1226-7. (IF = 6.307)
37) Kumar MS, Reddy PY, Sreedhar B, Reddy GB. Alphab-crystallin-assisted reactivation of glucose-6-phosphate dehydrogenase upon refolding. Biochem J. 2005 Oct 15;391(Pt 2):335-41.(IF=5.155)
38) Sreedhar B, Subramaniyan R, Nair KM. A protective role for zinc on intestinal peroxidative damage during oral iron repletion. Biochem Biophys Res Commun. 2004 Jun 11;318(4):992-7. (IF=2.548)
39) Sreedhar, B., Nair, K.M. Iron dependence and zinc inhibition of duodenal cytosolic aconitase of rat.(2004) Indian Journal of Biochemistry and Biophysics, 41 (5), pp. 250-253. (IF = 1.142) (30)
40) Sreedhar B. Conflicting evidence of iron and zinc interactions in humans: does iron affect zinc absorption? Am J Clin Nutr 2003;78:1226-1226

BOOKS / BOOK CHAPTERS PUBLISHED

41) Vijaya Lakshmi Bodiga, Sreedhar Bodiga. Ascorbic acid is a potential inhibitor of collagenases – in silico and in vitro biological studies. Chapter 22. In silico drug design Repurposing techniques and methodologies. 1st edition. 2019. Elsevier. Editor: Kunal Roy (ISBN: 9780128161258)
42) B. Sreedhar and B. Vijaya Lakshmi. Role of Copper in Modifying Cisplatin-Induced Cytotoxicity in Yeast. Microbial Biotechnology: Technological Challenges and Developmental Trends. Edited by. Bhima Bhukya & Anjana Devi Tangutur, CRC Press, Taylor & Francis Group (2016), pp.109-130 (Print ISBN: 978-1-77188-332-0; eBook ISBN: 978-1-77188-333-7; https://doi.org/10.1201/b19978
43) Bodiga VL and Bodiga S. New insights into the role of zinc in cardioprotection during ischemia/reperfusion injury. In Zinc: Characteristics, Uses and Benefits, Nova Science Publishers, Inc. 2011.
44) Bodiga S and Bodiga VL. Iron and zinc interactions at the site of absorption. Lambert Academic Publishers, 2012.
45) Sreedhar Bodiga, Sasidhar Reddy Eda, Vijaya Lakshmi Bodiga. Functional foods and cardiovascular disease, in Introduction to Functional Food Science: Textbook (Volume 1), edited by Danik M. Martirosyan, PhD, pp.258-296.

RESEARCH PROJECTS

2013
DBT-RGYI Grant on "Zinc pyrithione-induced cardioprotection in ischemia/reperfusion injury: Role of ErbB2, unfolded protein response and proteasomal function"
Value – 39 Lakhs

2014
DST-FASTTRACK Young Scientist
Molecular analysis of zinc transporter expression in cardiomyocytes during ischemia/reperfusion injury
Value – 19 Lakhs

2014
UGC-Startup Grant for FRP faculty
Value – 6 Lakhs

MEMBERSHIP IN PROFESSIONAL BODIES

American Heart Association

Society of Biological Chemists (India)

Nutrition Society of India.

WORKSHOPS/CONFERENCES/SYMPOSIUMS

Attended 9th Indian Society for Mass Spectrometry workshop (ISMAS-WS 2000) on "Mass spectrometry in new millennium: Instrumentation and Applications" held at National Institute of Oceanography, Dona Paula, Goa, during December 12-16, 2000.

Sreedhar B, Nair KM. Intestinal cytosolic aconitase as a tool to measure iron and zinc interactions, 70th Annual meeting of the Society of Biological Chemists (India), held at the Department of Biochemistry, Osmania University, Hyderabad during December 27-29, 2001.

Sreedhar B, Nair KM. Zinc deficient intestine is more susceptible to peroxidative damage during oral iron repletion, International conference on "Natural Products, Free Radicals and Radioprotectors in Health" (NFRH-2004) held during 17-19 January 2004, at Department of Biochemistry, Annamalai University, Tamilnadu.

Sreedhar B, Nair KM. Modulation of aconitase, metallothionein and ferritin during oral iron and zinc repletion in zinc deficient rats, at Asian Congress of Nutrition, December 2004, New Delhi.

Sreedhar B, Nair KM. Evidence for iron and zinc interactions at the site of absorption, International conference on "Natural Products, Free Radicals and Radioprotectors in Health" (SFRR-2005) held during 17-19 January 2005, at Department of Biochemistry and Biophysics, St. Johns Medical College, Bangalore.

Presented a poster titled"Epoxyeicosatrienoic acids (EETs) protect cardiovascular tissue from hypoxia/reoxygenation injury by inhibiting caspase 3 activity via the Akt survival pathway" at Internal Medicine Research Day, Department of Medicine, Medical College of Wisconsin, Milwaukee on January 19, 2007.

Presented a poster titled "Epoxyeicosatrienoic Acids (EETs) Protect Cardiovascular Tissue from Hypoxia/Reoxygenation Injury by Inhibiting Caspase 3 Activity via the Akt Survival Pathway" at the 9th Annual Winter Eicosanoid Conference, Baltimore, Maryland, March 11-14, 2007.

Presented a poster titled “Protection of mouse pulmonary arteries from hypoxia-induced apoptosis: cross talk between phosphoinositide 3-kinase and KATP channels” at Experimental Biology 2008 conference, San Diego, California.

Presented a poster titled “20-Hydroxyeicosatetraenoic acid protects the mouse pulmonary vasculature from apoptosis” at Experimental Biology 2008 conference, San Diego, California.

Oral presentation titled “Role of p47phox in enhanced susceptibility to biomechanical stress in ACE2 null mice” at the Department of Medicine Research Day, May 19, 2011.

Oral presentation titled” Uncoupling between enhanced excitation-contraction coupling and the response to heart disease” at the 15th Annual Cardiac Sciences Research Day, June 10th 2011.

Poster presentation titled “Loss of apelin exacerbates post-myocardial infarction remodeling and myocardial ischemia-reperfusion injury” at the American Heart Association Scientific Sessions 2011, Nov 12-16, 2011 at Orlando, Florida.

Oral presentation titled “Angiotensin converting enzyme 2 (ACE2) deficiency activates NADPH oxidase resulting in endothelial dysfunction and worsens diabetic cardiomyopathy” at the American Heart Association Scientific Sessions 2011, Nov 12-16, 2011 at Orlando, Florida.

Invited talk on “Molecular Expression Systems” at the National Seminar on “Emerging Trends in Microbial Biotechnology “ 8-9th Jan 2014, at the Dept of Industrial Microbilogy, SRR Govt Arts and Science College, Karimnagar

Oral presentation titled “ Zinc pyrithione administered at the onset of reperfusion ameliorates myocardial dysfunction and injury by activation of ErbB2, PI3K/Akt signaling” at International Conference on Recent Advances in Biosciences and Applications of Engineering in Production of Biopharmaceuticals (RABAEB) and 9th Annual Convention of Association of Biotechnology and Pharmacy, 14-16th Dec 2015.

Invited talk on “New Tools in Molecular Diagnosis” at the “Essential Genetic Diagnosis in Advanced Medical Care” held at the Institute of Genetics & Hospital for Genetic Diagnosis, Osmania University, Begumpet

Invited talk on “Zinc pyrithione regulates myocardial ErbB2 during ischemia/reperfusion injury” at the ICBNP-2015, Department of Biochemistry, Osmania University, Hyderabad

Invited talk on “Loss of ACE2 exacerbates systolic and vascular dysfunction” at the New Frontiers in Diagnosis and Management of Genetic Diseases, 29-30th January 2016 at IG & HGD, OU, Begumpet.