

BIOGRAPHICAL SKETCH
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NAME: BALASUBRAMANIAN PALANIAPPAN

eRA COMMONS USER NAME (credential, e.g., agency login): bpalaniappan

POSITION TITLE: POSTDOCTORAL FELLOW

EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.*)

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
Bharathidasan University, Tiruchirappalli, Tamilnadu, India	B.Sc.	07/94	Environmental Zoology
Bharathidasan University, Tiruchirappalli, Tamilnadu, India	M.Sc.	06/96	Zoology
University of Madras, Chennai, Tamilnadu, India	Ph.D.	09/2005	Zoology – Biotechnology
West Virginia University, Morgantown, WV	Postdoctoral	04/2010	GI/IBD
Marshall University, Huntington, WV	Postdoctoral	Present	GI/IBD

A. Personal Statement

I have the necessary background and preparation to be successful as a future junior investigator for this COBRE, which is focused on cellular transport physiology in obesity related disorders. I have been working as a postdoctoral researcher for the past 5 years under the supervision of Dr. Uma Sundaram. Currently, I am involved in the proposed project with specific focus on the functional aspects of Na-glutamine transporters B0AT1 and SN2, both in *in vivo* rabbit model and *in vitro* IEC-18 cell system. My training has given me the required expertise to handle the *in vivo* rabbit model of chronic intestinal inflammation and the *in vitro* system of intestinal epithelial cells. In these systems, I will conduct Na (villus-B0AT1) and/or Li-dependent (crypt-SN2) glutamine uptake and kinetic studies to understand the physiological role of these transporters. I'll also perform Na⁺/K⁺-ATPase studies to understand how it might regulate these brush border membrane (BBM) Na-glutamine co-transporters. I have demonstrated the use of these techniques in my publications. With my background and experience, I can definitely play an important and productive role in the proposed project.

B. Positions and Honors

Positions and Employment

2013-till date Postdoctoral Fellow, Department of Clinical and Translational Sciences, Marshall University, Huntington, WV

2010-2013 Postdoctoral Fellow, Section of Digestive Diseases, Department of Medicine, Health Sciences Centre, West Virginia University, Morgantown, WV

2008-2010 Assistant Professor, Department of Biotechnology, VELS University, Chennai, Tamilnadu, India.

2005-2008 Senior Lecturer, Department of Biotechnology, Vel's College of Science, (affiliated to University of Madras), Chennai, Tamilnadu, India.

2001-2004 Teaching cum Research Fellow, Department of Biotechnology, University of Madras, Chennai, Tamilnadu, India.

Other Experience and Professional Memberships

- 2000 Visiting Fellowship, The School of Biology and Biochemistry, The Queen's University of Belfast, Northern Ireland, U.K. through the Higher education link programme between the University of Madras, Chennai, India and The Queen's University of Belfast, Northern Ireland, U.K. sponsored by British Deputy High Commission, Chennai, India.
- 1996-1999 Project Assistant Fellow, Department of Zoology, University of Madras, Chennai, sponsored by a University Grant Commission, New Delhi, India.

C. Contribution to Science

1. With relevance to the proposed project, my contribution as a co-investigator in the recently published study shows that the Na-glutamine co-transporters B0AT1 and SN2 are regulated by mast cells during chronic intestinal inflammation. This study is extremely significant as it also demonstrated that the mast cell mediated regulation of B0AT1 and SN2 could be reversed by its specific inhibition showing that it is a highly regulated by immune inflammatory mediators.
 - a. Singh S, Arthur S, Talukder J, Palaniappan B, Coon S, Sundaram U. Mast cell regulation of Na-glutamine co-transporters B0AT1 in villus and SN2 in crypt cells during chronic intestinal inflammation. BMC gastroenterology. 2015;15:47. Epub 2015/04/18. doi: 10.1186/s12876-015-0275-5. PubMed PMID: 25884559 PMCID: PMC4405831.
2. I have documented as a co-investigator, that specific and chronic inhibition of Na⁺/K⁺-ATPase regulates Na-dependent glucose co-transport (SGLT1). As we know in chronic intestinal inflammation Na⁺/K⁺-ATPase activity is inhibited and this is partially responsible of nutrient malabsorption. However, chronic inhibition of this pump *in vitro* showed unique regulation of Na-dependent glucose co-transporters. This vital finding helped us to understand the direct regulation of SGLT1 by Na⁺/K⁺-ATPase.
 - a. Manoharan P, Gayam S, Arthur S, Palaniappan B, Singh S, Dick GM, Sundaram U. Chronic and selective inhibition of basolateral membrane Na-K-ATPase uniquely regulates brush border membrane Na absorption in intestinal epithelial cells. American journal of physiology Cell physiology. 2015;308(8):C650-6. Epub 2015/02/06. doi: 10.1152/ajpcell.00355.2014. PubMed PMID: 25652450 PMCID: PMC4398852.

Complete List of Published Work in MyBibliography:

<http://www.ncbi.nlm.nih.gov/sites/myncbi/1jMYGuN6GpEk1/bibliography/40634999/public/?sort=date&direction=descending>

D. Additional Information: Research Support and/or Scholastic Performance

Ongoing Research Support:

Completed Research Support: