BIOGRAPHICAL SKETCH
DO NOT EXCEED FIVE PAGES.

NAME: Arthur, Subha

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

POSITION TITLE: Assistant Professor

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
Women's Christian College University of Madras, Chennai, India	BSc	03/95	Botany, Zoology & Chemistry
University of Madras, Chennai, India	MSc	04/97	Molecular Biology
Dr. ALM Institute of Basic Medical Sciences University of Madras, Chennai, India	PhD	02/04	Molecular Biology-Microbiology
Section of Digestive diseases, Dept. of Medicine, WVU, Morgantown, WV 26505.	Post doctorate Research	12/09	Gastroenterology

A. Personal Statement

My research background and training has given me an extensive depth and understanding of the field of research of intestinal electrolyte and nutrient co-transporters, thus the expertise required for the successful completion of the proposed project for this COBRE, with a primary focus on cellular transport physiology in obesity and obesity-related conditions. My specific research focus for the propose is to decipher and understand the intra- and inter- cellular pathways and the molecular mechanisms involved in the regulation of Na-bile acid co-transport in obesity. To achieve this, and to solve the arising complex scientific questions, advanced concepts and techniques of physiology, molecular biology and membrane biology will be employed. I have demonstrated a record of accomplished and productive research projects relevant to the current proposal, as indicated through the following publications. The results of my study have been widely appreciated in the scientific community, and as well as at research conferences. I truly believe that with my expertise and experience I can successfully lead the proposed project. In addition to the scientific goals, participation in this COBRE project will allow me to receive intensive career and scientific mentoring to attain my goal of becoming a successful independent investigator.

1. Arthur S, Saha P, Kekuda R and Sundaram U. Regulation of Na-glutamine co-transport in villus and crypt cells by glucocorticoids during chronic enteritis. Inflamm Bowel Dis. 2012 Nov; 18(11): 2149-57. (PMID: 22508450)
2. Arthur S, Coon S, Kekuda R, and Sundaram U. "Regulation of sodium glucose co-transporter SGLT1 through altered glycosylation in the intestinal epithelial cells." Biochimica et Biophysica Acta (BBA)-Biomembranes 2014; 1838(5): 1208-14. (PMID: 24412219)

3. Arthur S, Sundaram U. Protein kinase C-mediated phosphorylation of RKIP regulates inhibition of Na-alanine cotransport by leukotriene D (4) in intestinal epithelial cells. Am J Physiol Cell Physiol. 2014 Dec 1; 307(11): C1010-6. (PMID: 25231108)
4. Saha P, Manoharan P, Arthur S, Sundaram S, Kekuda R, Sundaram U. Molecular mechanism of regulation of villus cell Na-K-ATPase in the chronically inflamed mammalian small intestine. Biochim Biophys Acta. 2015 Feb; 1848(2): 702-11. (PMID: 25462166)

B. Positions and Honors

Positions and Employment

2004-05 Lecturer, Dept. of Biotechnology, SIST, Chennai, India.
2005-09 Postdoctoral researcher, Section of Digestive diseases, Dept. of Medicine, WVU**.**
2010-13 Research Associate**,** Section of Digestive diseases, Dept. of Medicine, WVU**.**
2013- Assistant Professor, Department of Clinical and Translational Sciences, Marshall University, Huntington WV.

Professional Memberships

2005-10 Trainee member, American Gastroenterological Association.
2010- Member, American Gastroenterological Association

Honors

1995 Alma Stockey convocation Prize for the best outgoing student in BSc.
1995 Dr. Anna Zachariah prize for securing the highest marks in 'Microbiology' and 'Molecular Genetics' in BSc.
1995 P.X.Rengasami and Sinnadurai memorial prize for securing the highest marks in all the core practical papers in BSc.
1998 Junior Research Fellow awarded by Rameshwardas Birla Smarak Kosh, Mumbai, India.
2001 Senior Research Fellow awarded by Lady Tata Memorial Trust, Mumbai. India.

C. Contribution to Science

1. I have documented through a series of publications, both as the primary investigator and as a co-investigator, that intestinal Na-glutamine co-transporters B0AT1 and SN2 are altered during chronic intestinal inflammation resulting in the malabsorption of glutamine. This finding is extremely significant as glutamine is the essential building block of proteins and malabsorption of this nutrient results in progression of the disease. I have further shown with my co-investigators that these alterations are due to the direct effect of immune inflammatory mediators on Na-glutamine co-transporters in the enterocytes and could be efficiently reversed to normal with a broad spectrum immune modulator such as a glucocorticoid. This publication established that malabsorption of glutamine is an actively regulated process by the intestinal cells and is completely revocable. This information is extremely vital as it lays the stage to formulate efficacious treatment modalities for this chronic condition that is without a medical cure and commonly requires a lifetime of care. Following are the publications with direct relevance to the current proposal.
    a. Talukder JR, Kekuda R, Saha P, Arthur S, Sundaram U. Identification and characterization of rabbit small intestinal villus cell brush-border membrane Na-glutamine co-transporter. Am J Physiol Gastrointest Liver Physiol. 2008; 295(1):G7-G15. (PMCID: PMC2494716)

b. Saha P*, Arthur S*, Kekuda R and Sundaram U. Na-Glutamine co-transporters B0AT1 in Villus and SN2 in Crypts are differentially altered in chronically inflamed in rabbit intestine. Biophysica et Biochemica. 2012; 1818 (3):434-442. (*equal contribution by both authors) (PMID: 22100603)
c. Arthur S, Saha P, Kekuda R and Sundaram U. Regulation of Na-glutamine co-transport in villus and crypt cells by glucocorticoids during chronic enteritis. Inflamm Bowel Dis. 2012 Nov; 18(11): 2149-57. (PMID: 22508450)
d. Arthur S, Sundaram U. Inducible nitric oxide regulates intestinal glutamine assimilation during chronic intestinal inflammation. Nitric Oxide. 2015 Jan 30; 44:98-104 (PMID: 25524833).
e. 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(1):47. Epub 2015/04/18. doi: 10.1186/s12876-015-0275-5. PubMed PMID: 25884559; PubMed Central PMCID: PMCPmc4405831.

2. In addition to the above mentioned contributions, I have also documented with my co-investigators the key signaling pathways and molecular mechanisms that are involved in the regulation of (a) Na-alanine co-transporter ASCT1 by Leukotriene D4, (b) Na-glucose co-transporter SGLT1 by nitric oxide and (c) regulation of Na/K-ATPase during chronic intestinal inflammation. All these scientific contributions have established the role of immune pathways and intracellular signaling pathways on the primary nutrient absorptive mechanisms in the intestinal epithelial cells.
    a. Arthur S, Coon S, Kekuda R, and Sundaram U. "Regulation of sodium glucose co-transporter SGLT1 through altered glycosylation in the intestinal epithelial cells." Biochimica et Biophysica Acta (BBA)-Biomembranes 2014; 1838(5): 1208-14. (PMID: 24412219)
    b. Arthur S, Sundaram U. Protein kinase C-mediated phosphorylation of RKIP regulates inhibition of Na-alanine cotransport by leukotriene D (4) in intestinal epithelial cells. Am J Physiol Cell Physiol. 2014 Dec 1; 307(11): C1010-6. (PMID: 25231108)
    c. Saha P, Manoharan P, Arthur S, Sundaram S, Kekuda R, Sundaram U. Molecular mechanism of regulation of villus cell Na-K-ATPase in the chronically inflamed mammalian small intestine. Biochim Biophys Acta. 2015 Feb; 1848(2): 702-11. (PMID: 25462166)

Complete list of Published Work in MyBibliography:
http://www.ncbi.nlm.nih.gov/sites/myncbi/1DwhNN2y2tO5Y/bibliography/48009550/public/?sort=date&direction=ascending

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

Ongoing Research Support

Applachian Centre for Clinical and Translational Sciences 02/2015-01/2016
Title: Regulation of sodium dependent bile acid absorption in obesity.
The goal of this study is to determine how bile acid co-transport in the small intestine is regulated in obesity.
Role: PI

WV-INBRE Y15 Next Generation Sequencing pilot grant 08/2015-07/2016
Title: Molecular mechanism of ASBT regulation by high fat diet.
This study is aimed to determine the differential expression of genes in the intestine, in the background of high fat diet induced obesity.
Role: PI