

**Dr. Balamurugan Ramadass**  
**Visiting Scientist**  
**SKBET**  
**IIT Bhubaneswar**



## **BIO:**

Dr. Balamurugan Ramadass on completion of Bachelors & Masters in Medical Biochemistry from JIPMER, pursued his Ph.D. on 'Molecular studies of the commensal fecal anaerobic flora in health and diarrheal disease' under the guidance of Prof. BS Ramakrishna, at Christian Medical College, Vellore. He has worked with Dr. Lin (UNMH), Dr. Relman (Stanford) and Dr. Ward (Tufts) on various occasions. He enjoys teaching and research.

## **Research Focus:**

Dr. Balamurugan Ramadass leads the probiotics and human gut microbiome research laboratory at the SKBET. Dr. Ramadass's research focus the human gut microbiome in health and disease. The human gut microbiome is implicated in human health and disease. Subtle changes in the diversity and functionality of the gut microbiota are described in various disorders and disease progression. He has startling evidences of possible gut microbiome signatures that are condition-specific. These interaction between the gut microbiome and the host it resides in, is highly complex. He is particularly interested in measuring and understanding this complex interactions from the early stages of life and understand how microbiome matures till an aging elderly individual. Nutrition is a key factor that shapes the gut microbiome and health in all age group. He is exploring the roles of human nutrition, associated diseases and interventional strategies to the establishment of the gut microbiome.

## **Teaching focus:**

Clinical Nutrition, Medical Biochemistry, Gut biology, Gut microbiome, Prebiotics, Probiotics and life style disorders.

## Academic Appointments:

Position	Institution and Location
Junior Research Fellow (ICMR)	Christian Medical College, Vellore
Senior Research Fellow (ICMR)	Christian Medical College, Vellore
Lecturer	Christian Medical College, Vellore
Post-Doctoral Fellow	University Of New Mexico and Hospital, Albuquerque, USA
Assistant Professor	Christian Medical College, Vellore
Associate Professor	PRIMS,CHENNAI
Associate Professor	Kerala Medical College, Cherpulassery

## Awards & honors:

Junior Research Fellowship	ICMR
Indo-French Ph.D. Sandwich scholarship	French Attaché, India / EGIDE, Paris
Young investigator	Indian Society of Gastroenterology, Jaipur
Indo-French Post-Doctoral Fellowship	French Attaché, India / EGIDE, Paris
Best Poster Certificate	Indian Society of Gastroenterology, Jaipur
Travel Award	BMGF funded to attend Abelson Symposium on 'Microbiomes and 21st Century Medicine in AAAS, Washington DC.
GIDR Fogarty Fellowship	Fogarty/ Research Trainee at Dr. Relman's group at Stanford Univ. & with Dr. Honorine Ward's Lab at TUFTS Medical Center.
Host to Bravo! Fellow	NIH / Univ. of Arizona Undergrad Biology research Program

## SCIENTIFIC PROJECTS:

Ref no. & Role	Title	Grant Cost (Rs.)	Period	Agency Funding
IRB approval 6518 dt 19/03/2008 Ac/22X227 Role: PI	Does alteration in dietary pattern and alteration in bacterial composition affect iron uptake in young anaemic women?	30,000.00	2008	CMC Fluid Research Grant
BT/PR-10769/FNS/20/384/2008 Role: Co-Investigator	Meta-genomic study of the faecal anaerobic bacteria flora in healthy rural South Indian subjects.	INR 50,70,100.00	2009-2012	DBT, New Delhi
BT/PR-14963/FNS/20/502/2010 Role: Co-PI	A study looking at the benefit of oral non-digestible starch in reducing, rectal pain and diarrhoea in patients undergoing radiation treatment of cancer cervix.	INR 13,00,000.00 / off the total fund secured by the PI	2011-2014	DBT, New Delhi

## Ongoing @IIT BBS

Ref no. & Role	Title	Grant Cost (Rs.)	Period	Agency Funding
BIRAC/GCI/0077   03/14-ACT Role: Co- Investigator	An intergenerational prebiotic approach to establishment of a healthy colonic Microbiome in children.	213 lakhs	Dec 2016-ongoing	BIRAC

## STUDENTS TRAINED (@IIT BBS):

Student/Degree/College	Training Period	Title/publication
Dr. Venkatesh Kaliaperumal/ MBBS MD/(Post Doc), IIT BBS	2016-till date	<b>Redox &amp; gut microbiome</b> Kalipatnapu S, Kuppuswamy S, Venugopal G, Kaliaperumal V, Ramadass B. Fecal total iron Concentration is inversely associated with Fecal Lactobacillus in preschool children. J Gastroenterol Hepatol. 2017 Jan 11. [Epub ahead of print] PubMed PMID: 28076655.
Ms. Swapna Sahoo/MSc	2016	<b>Estimation of Resistance starch in Raw Banana</b>
Ms. Megha Sathpathy/ B.Tech/REC	2016	<b>An intergenerational prebiotic approach to establishment of a healthy colonic Microbiome in children.</b>

## PUBLICATIONS:

1. Kalipatnapu S, Kuppuswamy S, Venugopal G, Kaliaperumal V, **Ramadass B**. Fecal total iron Concentration is inversely associated with Fecal Lactobacillus in preschool children. J Gastroenterol Hepatol. 2017 Jan 11. [Epub ahead of print] PubMed PMID: 28076655.
2. Sandya RB, **Ramadass B**, Ramakrishna BS. Molecular analysis of the human fecal archaea in a southern Indian population. J. Biosci. Mar 2017; 42(1): 1-8.
3. Dinh DM, **Ramadass B**, Kattula D, Sarkar R, Braunstein P, Tai A, Wanke CA, Hassoun S, Kane AV, Naumova EN, Kang G, Ward HD. Longitudinal Analysis of the Intestinal Microbiota in Persistently Stunted Young Children in South India. PLoS One. 2016 May 26; 11(5):e0155405. PubMed PMID: 27228122; PubMed Central PMCID: PMC4881907.
4. **Balamurugan R**, Sandya RB, Pugazhendhi S, Ramakrishna BS. Faecal Microbiota of healthy adults in southern India: comparison of a tribal and a rural population. Indian J Med Res, 2016; in press.
5. Ramakrishna BS, Makharia GK, Chetri K, Dutta S, Mathur P, Ahuja V, Amarchand R, **Balamurugan R**, Chowdhury SD, Daniel D, Das A, George G, Gupta SD, Krishnan A, Prasad JH, Kaur G, Pugazhendhi S, Pulimood A, Ramakrishna K, Verma AK. Prevalence of Adult Celiac Disease in India: Regional Variations and Associations. Am J Gastroenterol. 2016 Jan; 111(1):115-23. PubMed PMID: 26729543.
6. **Balamurugan R**, Chandragunasekaran AS, Chellappan G, Rajaram K, Ramamoorthi G, Ramakrishna BS. Probiotic potential of lactic acid bacteria present in homemade curd in southern India. Indian J Med Res. 2014 Sep; 140(3):345-55. PubMed PMID: 25366201; PubMed Central PMCID: PMC4248380.

7. Kabeerdoss J, Ferdous S, **Balamurugan R**, Mechenro J, Vidya R, Santhanam S, JanaAK, Ramakrishna BS. Development of the gut microbiota in southern Indian infants from birth to 6 months: a molecular analysis. *J Nutr Sci*. 2013 Jun 19; 2:e18. PubMed PMID: 25191566; PubMed Central PMCID: PMC4153310.
8. **Balamurugan R**, Magne F, Balakrishnan D, Suau A, Ramani S, Kang G, Ramakrishna BS. Faecal bifidobacteria in Indian neonates & the effect of asymptomatic rotavirus infection during the first month of life. *Indian J Med Res*. 2010 Dec; 132:721-7. PMID: 21245621.
9. **Ramadass B**, Dokladny K, Moseley PL, Patel YR, Lin HC. Sucrose co-administration reduces the toxic effect of lectin on gut permeability and intestinal bacterial colonization. *Dig Dis Sci*. 2010 Oct; 55(10):2778-84. PMID: 20686845.
10. Pélissier MA, Vasquez N, **Balamurugan R**, Pereira E, Dossou-Yovo F, Suau A, Pochart P, Magne F. Metronidazole effects on microbiota and mucus layer thickness in the rat gut. *FEMS Microbiol Ecol*. 2010 Sep; 73(3): 601-10. PMID: 20579100.
11. **Ramadass B**, Chittaranjan S, Subramanian V, Ramakrishna BS. Fecal polymerase chain reaction for *Mycobacterium tuberculosis* IS6110 to distinguish Crohn's disease from intestinal tuberculosis. *Indian J Gastroenterol*. 2010 Jul; 29(4):152-6. PMID: 20577845.
12. **Balamurugan R**, Mary RR, Chittaranjan S, Jancy H, Shobana Devi R, Ramakrishna BS. Low levels of faecal lactobacilli in women with iron-deficiency anaemia in south India. *Br J Nutr*. 2010 Oct; 104(7):931-4. PMID: 20447323.
13. **Balamurugan R**, George G, Kabeerdoss J, Hepsiba J, Chandragunasekaran AM, Ramakrishna BS. Quantitative differences in intestinal *Faecalibacterium prausnitzii* in obese Indian children. *Br J Nutr*. 2010 Feb; 103(3):335-8. PMID: 19849869.
14. **R Balamurugan**, Sucharita PC, C Aarthi Merlin and BS Ramakrishna. Molecular detection of the butyrate-producing ruminal bacterium, *Butyrivibrio fibrisolvens*, in the feces of rural South Indians. *Microbial Ecology in Health and Disease*, 2009; 21; 38-43.
15. PRJVC Boopalan, Samuel BC, **R. Balamurugan**, N.S. Nandakumar, A. Sabareeswaran and M Mohanty. Pulsed electromagnetic field (PEMF) treatment for fracture healing. *Current Orthopaedic Practice*, 20(4):423-428, Aug 2009.
16. Nanda Kumar NS, **Balamurugan R**, Jayakanthan K, Pulimood A, Pugazhendhi S, Ramakrishna BS. Probiotic administration alters the gut flora and attenuates colitis in mice administered dextran sodium sulfate. *J Gastroenterol Hepatol*. 2008 Dec; 23(12):1834-9. PMID: 19120873. Pugazhendhi S, Amte A,
17. **Balamurugan R**, Subramanian V, Ramakrishna BS. Common NOD2 mutations are absent in patients with Crohn's disease in India. *Indian J Gastroenterol*. 2008 Sep-Oct; 27(5):201-3. PMID: 19112191.
18. **Balamurugan R**, Janardhan HP, George S, Chittaranjan SP, Ramakrishna BS. Bacterial succession in the colon during childhood and adolescence: molecular studies in a southern Indian village. *Am J Clin Nutr*. 2008 Dec; 88(6):1643-7. PMID: 19064526.
19. **Balamurugan R**, Balaji V, Ramakrishna BS. Estimation of faecal carriage of *Clostridium difficile* in patients with ulcerative colitis using real time polymerase

- chain reaction. Indian J Med Res. 2008 May; 127(5):472-7. PMID: 18653911.
20. **Balamurugan R**, Rajendiran E, George S, Samuel GV, Ramakrishna BS. Real-time polymerase chain reaction quantification of specific butyrate-producing bacteria, *Desulfovibrio* and *Enterococcus faecalis* in the feces of patients with colorectal cancer. J Gastroenterol Hepatol. 2008 Aug; 23(8 Pt 1):1298-303. PMID: 18624900.
  21. **Balamurugan R**, Janardhan HP, George S, Raghava MV, Muliyl J, Ramakrishna BS. Molecular studies of fecal anaerobic commensal bacteria in acute diarrhea in children. J Pediatr Gastroenterol Nutr. 2008 May; 46(5):514-9. PMID: 18493205.
  22. **Balamurugan R**, Selvaraj N, Bobby Z, Sathiyapriya V. Increased glycated haemoglobin level in non-diabetic nephrotic children is associated with oxidative stress. Indian J Physiol Pharmacol. 2007 Apr-Jun; 51(2):153-9. PMID: 18175659.
  23. **Balamurugan R**, Venkataraman S, John KR, Ramakrishna BS. PCR amplification of the IS6110 insertion element of *Mycobacterium tuberculosis* in fecal samples from patients with intestinal tuberculosis. J Clin Microbiol. 2006 May; 44(5):1884-6. PMID: 16672431.
  24. **Balamurugan R**, Bobby Z, Selvaraj N, Nalini P, Koner BC, Sen SK. Increased protein glycation in non-diabetic pediatric nephrotic syndrome: possible role of lipid peroxidation. Clin Chim Acta. 2003 Nov; 337(1-2):127-32. PMID: 14568188.

## BOOK CHAPTER:

Gemlyn George, **Ramadass Balamurugan**. Defining Human Gut Microbiome: Role of Diet and Infection. Book title: Probiotics, Microbiome and Gut Function-transforming health and well being. 2015 March, ISBN: 978-81-312-4054-0.

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