Probiotic Association of India

VOLUME I, ISSUE 7 SEPTEMBER, 2014

INSIDE THE ISSUE

About 2nd PAi Conference	2
Probiotic an alternate to suppressive drug	3
Redefining the definition of Probiotics	4
Medical Nutrition Therapy & Probiotics	5 – 6
Sarvotham Group -A Profile	7 - 8
PAi New Members List	9 -10

From Editor's Desk

Dear Members,

Greetings from PAi Newsletter Editorial board!

As you all must be aware that Probiotic Association of India is going to organize its 2nd Conference along with the International Symposium with the theme title "Probiotics and Microbiome - Gut & Beyond" on 3rd and 4th Nov., 2014 at India Habitat Centre, New Delhi. I am quite sure that you all must have already received our invitation in this regard and by now, many of you must have already got registered for the conference. We look forward for your active participation in the conference. We are expecting around 350 participants from different parts of India and abroad representing various research institutes, academic organizations and representatives from the industry. We hope, you all will have a wonderful quality productive time at the two days deliberations which will enrich your with treasure of knowledge and new developments currently witnessed in probiotic research from global perspectives. In the backdrop of tremendous amount of excitement being generated in the country on account of the upcoming PAi Conference, we take this opportunity to launch 7th issue of PAi newsletter. The main focus of this issue of PAi Newsletter is obviously on the upcoming PAi Conference. Besides that, some interesting papers related to some new thinking and probiotic based dietary interventions both as food nutraceuticals and therapeutics for leading a healthy life will also figure therein. Hope, the contents of the new issue of the PAi newsletter will provide you the desired tonic to stimulate your hunger for entering into scintillating brain storming sessions in the upcoming conference ahead. We always look forward to your valuable suggestions to further improve the quality of our newsletter with a new touch. Besides this, we also expect solid contributions such as general articles, new scientific breakthroughs in probiotic research, launch of new probiotic formulations and any other useful information related to probiotics from you for the next issue. Hope , you will cooperate and do the needful for the benefit of all the stakeholders having interest in probiotics.

Wishing you all a wonderful, pleasant and healthy time ahead!

2nd PAi Conference & International Symposium

on "Probiotic and Microbiome: Gut & Beyond"

Probiotic Association of India feels a great pleasure to announce that 2nd PAi Conference is going to be held on 3rd and 4th Nov., 2014 at India habitat centre, New Delhi.

Awards

Oral presentations by young Researchers (Below 35 years): Six shortlisted young researchers will be invited for presentations for selecting three best speakers for the award.

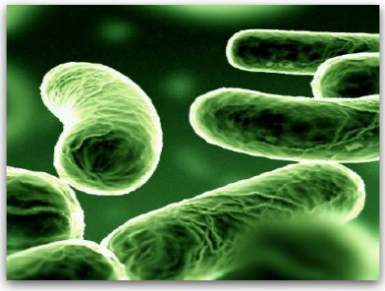
1st Prize : Rs. 10,000
2nd Prize : Rs. 7,000
3rd Prize : Rs. 5,000

Poster Sessions: 10 posters (5 from Applied Research and 5 from Basic Research) will be shortlisted by expert panel and will be awarded a Cash Prize of Rs. 2,000 each

Important Dates

Last Date of Registration for Conference	15th October, 2014
Last Date for Abstract Submission and Oral Presentation	10th September, 2014
Date of Conference	3rd & 4th November, 2014

Probiotics an Alternative to Immunosuppressive Drugs



Mitesh Dwivedi and Prasant Kumar
C.G. Bhakta Institute of Biotechnology,
Department of Fundamental and Applied Science,
UKA Tarsadia University, Bardoli, Surat-394 350,
Gujarat, India
E-mail: prasant.kumar@utu.ac.in

The administration of microbes or microbial metabolites for the prevention and treatment of aberrant immune response is gaining importance. Probiotic strains imparting immune regulatory effects are now being explored towards its plausible applications as therapeutics for treatment of autoimmune diseases besides the immunosuppressive drugs. Studies in this field in the past decade have suggested the successful recovery of autoimmune disorders using the potential probiotic strains in several animal autoimmune models as well as in human clinical trials. Probiotics have been found successful in treating the autoimmune animal disease models of experimental autoimmune encephalomyelitis (EAE), diabetes mellitus, arthritis and inflammatory Bowel diseases. Moreover, the human clinical trials of the probiotics have shown a significant decrease in disease activity for rheumatoid arthritis, spondyloarthritis, type 1 diabetes and inflammatory bowel disease, celiac diseases. For example, *Bifidobacterium animalis* subsp. *lactis* 420, *B. Adolescentis*, *Lactobacillus acidophilus*, *L. casei*, and *L. lactis* besides *VSL#3* were found to be effective in amelioration of type 1 diabetes. Combination of three probiotic strains *L. paracasei* DSM 13434, *L. plantarum* DSM 15312 and DSM 15313 have shown beneficial effects in multiple sclerosis. *L. casei* 01 probiotic improved the disease activity and inflammatory status of patients with rheumatoid arthritis. *B. infantis* has been demonstrated to reduce symptom severity in patients with irritable bowel syndrome (IBS). *Lactobacillus rhamnosus* GG or *Bifidobacterium lactis* (Bb-12) inhibits subsequent allergic sensitization and airway disease in a murine model of asthma. *L. paracasei* DSM 13434, *L. plantarum* DSM 15312 and DSM 15313 suppressed the progression and reversed the clinical and histological signs of EAE. Thus, the list of the immune regulatory probiotic strains is getting bigger and bigger. However, these findings indicate a therapeutic potential of probiotics that contribute to beneficial effects in management of autoimmune diseases.

The advantages of probiotics over the use of immunosuppressive drugs which have considerable side effects made it valuable in the current research scenario. Studies have shown that probiotics play an important role in suppression of hyper activated immune responses. The protective effects associated with these microbes are mediated by multiple immune based mechanisms involving T cells, DCs and epithelial cells. In particular, these immune regulatory microbes may involve in regulation of T cell subsets, such as in Th1/Th2 balance, in production and induction of Tregs and in T cell hyporesponsiveness. In addition, probiotics maintain serum inflammatory parameters, help in development of tolerogenic dendritic cells, involve in lymphocyte subpopulation changes and in maturation of gut barrier leading to oral tolerance and local anti-inflammatory effects.

Although, the probiotics have been shown to exert immune regulatory roles in controlling autoimmunity, their exact mechanism in ameliorating autoimmunity is not clearly defined for several autoimmune diseases. Moreover, the challenge is to colonize these probiotics in the gut. Further, mechanism based studies involving both animal models and human clinical trials will pave the way towards the better understanding of the use of either single or combination of probiotics as an alternative to immunosuppressive drugs.

Redefining the Definition of Probiotics

It is now 13 years since the definition of probiotics and 12 years after guidelines were published by the Food and Agriculture Organization of the United Nations and the WHO (FAO/WHO). Moving further in this direction, an expert panel was convened in October 2013 by the International Scientific Association for Probiotics and Probiotics (ISAPP) to discuss the field of probiotics to make their regulation more meaningful from scientific, industrial and consumer's perspective. The FAO/WHO definition of a probiotics —"live microorganisms which when administered in adequate amounts confer a health benefit on the host"—was reinforced as relevant and sufficiently accommodating for current and anticipated applications. However, inconsistencies between the FAO/WHO Expert Consultation Report and the FAO/WHO Guidelines were clarified to take into account advances in science and applications. A more precise use of the term 'probiotic' will be useful to guide clinicians and consumers in differentiating the diverse products on the market.

Consensus panel recommendations for the scope of probiotics and its appropriate use is as follows

- Retain the FAO/WHO definition[1] for probiotics, with a minor grammatical correction as "**live microorganisms that, when administered in adequate amounts, confer a health benefit on the host**". By introducing this minor change, inconsistencies between the Expert Consultation[1] and the FAO/WHO Guidelines[2] were clarified
- Include in the framework for definition of probiotics microbial species that have been shown in properly controlled studies to confer benefits to health
- Any specific claim beyond "contains probiotics" must be further substantiated
- Keep live cultures, traditionally associated with fermented foods and for which there is no evidence of a health benefit, outside the probiotic framework
- Keep undefined, faecal Microbiota transplants outside the probiotic framework
- New commensals and consortia comprising defined strains from human samples, with adequate evidence of safety and efficacy could also be designated as 'probiotics'

Dead microbes, microbial products, microbial components do not come under the probiotic classification. Clarifying the proper scope and appropriate use of the term probiotic is important so that all stakeholders in the probiotic field including consumers, research-ers, health-care professionals, industry and legislators, with clearer guidelines for defining and using probiotics and will share an understanding of probiotics that is consistent with current research. This clarification will facilitate continued advances in probiotic research and will ensure probiotic benefits are properly communicated to consumers and patients.

Information compiled by Aparna S.V., Rashmi H. M., Sunita Grover and V.K Batish
Molecular Biology Unit, Dairy Microbiology Division, NDRI, Karnal

For further reading, please refer to the following paper published recently.

Hill C., Guarner F., Reid G., Gibson G R., Merenstein D.J., Pot B., Morelli L., Canani R.B., Flint H. J., Salminen S., Calder P.C., and Sanders M.E. **2014**. The International Scientific Association for Probiotics and Prebiotics consensus statement on the scope and appropriate use of the term probiotic. *Nature Reviews Gastroenterology & Hepatology*. **11**(8), 506-5.

Medical Nutrition Therapy & Probiotics

Emerging Nutrigenomic approach to explain the interaction between probiotics, genome of foods and intestinal micro-biota in health promotion and disease prevention

Subhasree Ray
PhD student, SNDT Women's University
Mumbai, Maharashtra, India
Nutritionist, NRC, NRHM,
Dept. Of Health & Family Welfare, Govt. Of West Bengal
Email : roysubhoshree@gmail.com

Introduction: Biochemistry, Molecular Biology and Nutrigenomics represent a key band of Science in explaining the mechanism of action of nutrients and other food bio-active compounds in health and diseases. Nutrigenomics in conjunction with medical nutrition therapy use the molecular and genomic tools to study molecular responses to dietary factors and metabolic consequences of food. It also considers major challenges in Human Nutrition Science in 21st Century.

Molecular insight of interaction between probiotics and Human host: Among various functional foods, nutraceuticals and probiotics have been proven to be extremely beneficial for the gut health. Probiotic bacteria can modulate immune responses in the host gastro-intestinal tract to promote health and prevent diseases. The 'omics' era has provided explanation and opportunities how, probiotic bacteria interact with other two genomes – food genome as well as human host genome. Nutrigenomics analyses the response to probiotics in signaling and immune response pathways. Among the possible mechanisms of probiotic therapy, one is promotion of non-immunogenic gut defense barrier, which includes the normalization of increased permeability and altered gut micro-ecology. Another mechanism of the therapy is improvement of the intestinal immunologic behavior through intestinal immunoglobulin by alleviating intestinal inflammatory responses, which provides a gut stabilizing effect.

Besides immune response, a new concept of 'Gutome' has arrived in 21st Century's study of Biomedicine. 'Gutome' is the nutritional system biology of gut microbiome and host-microbiome interaction. This interaction approaches to promote personalized, tailored-based nutrition, personalized health and wellness. It is possible to choose individual diet for individual person in the context of clinical nutrition therapy. Nutritional metabolomics, therefore, provides a systematic approach through the comprehensive analysis of metabolites aiming today at the quest for homeostatic balance which is dependent not only on the host but also on the crucial metabolic interactions with microbial synbionts.

Now, most recently, molecular insight of interaction between IBD and probiotics is in focus and is included in the existing discussions on findings novel dietary based strategies to manage human health and well being from a broader perspective. IBD arises in part from a genetic predisposition, through the inheritance of three polymorphisms. It has been shown that any of these polymorphisms of the Caspase-Activaed-Recruitment Domain (CARD15) gene are more

gene involved in IBD and suggests more strategic approach in choosing Probiotics and prebiotics for intervention. Both these functional foods reduce symptoms of gut inflammation by secreting some omega – 3 fatty acids and polyphenols. But, such approaches require that the gene of interest is functioning normally and is not mutated or down-regulated. Several studies are now introducing new ways of treating and managing IBD and Ulcerative Colitis by replacing antibiotics for avoiding unwanted side effects caused by the medicines. Such a therapy is VSL#3, a potent probiotic mixture of Lactobacillus strains including Bifidobacteria and *Streptococcus thermophilus.*

Discussion: Together, the genomic approaches and health aspect of probiotics have identified several bacterial factors and biomolecules that are involved in modulation of the immune system and mucosal barrier, and have revealed that a molecular 'bandwith of human health' could represent a key determinant in an individual's physiological responsiveness to probiotics. It is being studied at genomic, proteomics and metabolomics level that human gut microbiota encompasses a complex ecosystem in the intestine with profound impact on host metabolism. Gene and protein expression studies as well as metabolite profiling in humans investigating (rather acute) responses to nutritional interventions have become standard for mechanistic nutritional research and both validation and translation of these results are still challenging. There are emerging examples of functionally impacting polymorphisms in metabolically relevant genes that determine whether or not, or to which extent an individual benefits from a specific diet or ingredient. However, nutrigenetics-based foods are still to be developed. And it is just the beginning of molding Medical nutrition Therapy into Personalized Nutrition.

Conclusion: Finally, we are only at the beginning to appreciate how epigenetic programming is not only a natural part of development and differentiation but also a mechanism of long-term gene expression changes that result in "metabolic memory." The new information about interaction between genomes is helping to set a rationale for selection of a next generation of probiotics. Candidates include Clostridia clusters IV, XIVa and XVIII, *Faecalibacterium prausnitzii*, *Akkermansia muciniphila* and *Bacteroides uniformis* etc, the effects of which have been evaluated in preclinical trials with promising results for inflammatory and diet-related disorders like IBD, Ulcerative Colitis and diarrhea. Yet, the extent to which new probiotic formulations consisting of nonconventional indigenous gut bacteria will be effective on humans at a population level or in personalized nutrition strategies remains to be explored. Nevertheless, nutrigenomic approach in conjunction with gut microbiome and probiotic interventions has opened new

Sarvotham Group Ltd - A profile

Est. 1982

SARVOTHAM GROUP

- Sarvotham Care Limited has been incorporated in 1996, as a public limited company registered under the companies act.
- One of the leading manufacturers of Health, Personal and Home Care products like Powders, tablets, ointments, creams, cosmetics, Ayurvedic preparations etc.
- With a total investment of over `150 crores in plant and machinery, Sarvotham Care and Sarvotham Care Limited have units in Hyderabad & Baddi; catering to the needs of multi national clients – Amway, P&G, GSK, Menarini Raunaq, Dr. Reddy's etc., to manufacture – dietary supplements, cosmetics and other home care & personal products.
- Sarvotham Remedies Limited has been setup in association with P&G, for manufacturing Vicks Vaporub & Action 500
- Sarvotham Solutions the R&D vertical of the group is a dedicated entity for carrying out research in the fields of Nutraceuticals (including pre & pro biotics), Ayurceuticals & OTC Pharmaceuticals.
- The current group turnover is over `450 crores and set to cross the `500 crore mark by 2015

Human Resources:

Behind Sarvotham's success are the skills and the outstanding achievements of its workforce. Dedication and commitment make for the right fuel for the company to surge ahead. Out of over a 1000 employees 30 are highly qualified professionals (Drs. PHDs, MBAs, M.Techs) 150 are in QC/QA, 250 are in production, 5 are in R & D and the rest are skilled workers.

Every team member at Sarvotham is trained in QMS & on job regularly to enhance skills and to ensure consistent quality standards. These practices not only help the company in maintaining the best practices but also give its workforce a sense of involvement.

Sarvotham has gained recognition as one of the leading contract manufacturers in India and is known for its quality policy "Sarvotham Quality, First time, Every time".

Our current business associates, with whom we have long-term contracts, include globally renowned MNCs like

- Amway India limited
- P&G Health and Hygiene India ltd
- GlaxoSmithKline India ltd (GSK)
- Dr. Reddys Laboratories
- Cipla Ltd
- Menarini Raunaq Pharma Ltd
- Astra Zeneca Ltd
- Bayer India Ltd
- Wen Ken Group of Companies

PAi Family Details (New Members)

Life Members

S. No.	Name	Email	Membership ID
1	Dr. Neelakanteshwara Gopalaih	neelg1978@gmail.com	278
2	Dr. Rama Chaudhary	ramach003@yahoo.com	279
3	Ms. Deepani Upeka Rajawardana	upekarajawardana@yahoo.com	287
4	Dr. Kavita Garg	kavita.garg@cdpharmaindia.com	293
5	Dr. Dheer Singh	drdheer.singh@gmail.com	294
6	Dr. Suneel Kumar Onteree	suneelvet@gmail.com	295
7	Dr. Ashish Kumar Suresh Chandra Patel	ashuamul@yahoo.co.in	296
8	Dr. Ravi sethi	ravi.sethi60@yahoo.com	297
9	Dr. Rajbir singh	rajbircdri@gmail.com	298
10	Dr. A. Jagganath	jagann10@yahoo.com	301
11	Dr. Ligimol James	ligi11@rediffmail.com	319
12	Dr. Kanthi Kiran kondepudi	kiran@nabi.res.in	320
13	Dr. Mahendra Bishnoi	mbishnoi@nabi.res.in	321
14	Dr. Archana	achus2709@gmail.com	322
15	Dr. Padma Ambalam	padma_ambalam@yahoo.com	323
16	Dr. Jayabalan Rasu	jayabalanr@nitrkl.ac.in	324
17	Dr. Ashis Kumar Samanta	drashiskumarsamanta@gmail.com	325
18	Dr. gautam Kaul	gkndri@gmail.com	334
19	Dr. Kumaraswamy jeyaram	jeyaram.ibsd@nic.in	335
20	Dr. Vikas Kumar	vikas.phe@iitbhu.ac.in	336
21	Dr. Shilpa Vij	shilpavijn@yahoo.co.in	338

Ordinary Members

S.No	Name	Email	Membership ID
1	Mr. C.P. Charlcpes	cp.charles@gmail.com	281
2	Ms. Amitha Thomas	amirose05@gmail.com	303
3	Ms. Vandana Kumari	vandu01arya@yahoo.co.in	304
4	Mital kathiriya	mitalkathiriya1@gmail.com	337

Student Members

S. No.	Name	Email	Membership ID
1	Ms. Sheenam Garg	sheenam25garg@gmail.com	284
2	Ms. Nancy Awasti	nancyawasthi10@gmail.com	285
3	Ms. Varsha garg	varshagarg9@gmail.com	286
4	Mr. Gbenga Adedeji	gbenga_adewumi2007@yahoo.com	292
5	Ms. Sonam dogra	sonamdogra87@yahoo.co.in	300
6	Mr. Vijay Kumar	vijaykumar2051983@yahoo.co.in	302
7	Ms. Garima Chandel	garimachandel31@gmail.com	305
8	Ms. Shriya Mehta	shriyamehta197@gmail.com	306
9	Mr. Abhinay Shashank	abhinay.muz@gmail.com	307
10	Ms. Neha Sharma	nehaatdu@gmail.com	308
11	Mr. Anay kumar Maurya	anay.maurya@gmail.com	309
12	Mr. Rohan Pal	rohanpal..agt.du.1993@gmail.com	310
13	Ms. Himanshi	saini.himanshi0614@gmail.com	311
14	Ms. Swati Anand	shriyamehta197@gmail.com	312
15	Mr. Akshay Amrendra Jha	akshay95@gmail.com	313
16	Mr. Mridul Sharma	krmridul@gmail.com	314
17	Ms. Deepika Chandel	deepika_chandel@yahoo.com	315
18	Mr. Vivek Sharma	viveksharma.biotech@gmail.com	316
19	Ms. Bhawana Sharma	bhawna151091@gmail.com	317
20	Divya J.B.	divya.jb@gmail.com	327
21	Ms. Reeta	reeta29058@gmail.com	328
22	Mr. Dilip kumar	dilip.bhu@live.in	329
23	Ms. Prity Singh	pspritysingh3@gmail.com	331
24	Ms. Bindu Naik	binnaik@gmail.com	332
25	Shubhangi Srivastava	shubhangi1305@yahoo.com	333
26	Ms. Deepthi B.V.	deepthi1806@gmail.com	339
27	Poorna Chandra Rao	pckrao.06@gmail.com	340

Corporate Members

S. No.	Name	Email
1.	Sarvotham Care Ltd.	mohan_krishna@sarvothamcare.com
2.	C.D. Pharma India Pvt.	kschadha@vslpharma.com
3.	Danisco India Pvt. Ltd	sanjay.iqbal@dupont.com

The technical support rendered by Mr. Sourabh Bajaj from DM Division, NDRI, Karnal in compilation of this issue of the Probiotic Newsletter is duly acknowledged. The editorial board also expresses thanks to all the authors who contributed their inputs for the newsletter.

Contact us: Probiotic Association of India, National Dairy Research Institute, Karnal —132001 (Haryana)
Tel : 91-184-2259190, Fax: 91-184-2250042
E. mail: drprobiotic@gmail.com