# PRO GUT VIII

MARCH 2026

GUT MICROBIOTA AND PROBIOTIC SCIENCE FOUNDATION (INDIA)

CONTENTS


From the President's Desk

About the Gut Microbiota and Probiotic Science Foundation (India)

Meet our Members

The Year Gone by...

Unlocking Potential

Unraveling the mysteries of the Gut Microbiota

Probiotic Science and Where we stand today

International Scientific Association of probiotics and Prebiotics (ISAPP) definition of Probiotics, Prebiotics, Synbiotics and Postbiotics

In the spotlight

Did you Know?

A peep into the calendar of events 2025

**Prof. N. K. Ganguly**
President

Gut Microbiota and
Probiotic Science
Foundation (India)

# *From* The President's Desk

It has been a very interesting a roller coaster year for the Gut Microbiota / Probiotic Research and product developments. The CSIR started a taskforce for Microbiome research and lot of start ups were registered to make designer products. It was of that in gut microbiome access you could intervene with Thiamine and also research done by Dr. Kapil Jamwal and Dr. Ayushi Purohit and a device is now available for controlling vagal stimulation. The nature brought out an article describing for the first time definition for gut dysbiosis, microbiome has come up as a major research tool in geriatric health whereby it is being used to access their immunosenescence (gut health and mortality) as well as energy levels and muscle health. The role of microbiome in skin health as well as neonatal growth has been established much more firmly. It has been observed that degenerative brain diseases could be modulated with the help of microbiome. We now know that microbiome improves the intake of vaccine in children who were challenged. Also, improve health in survival during neonatal septicaemia. The metabolomic measurements link to specific organisms also helps in designing synbiotics as well as nutrients to help in the various disease conditions as well as surgical outcomes. ICU patients could also be helped with lesser hospital stay and better survival. Several companies have emerged in creating phage libraries to penetrate the biofilm and kill the resistant microorganisms. Finally, the microbiomes have influenced the outcome in Cancer therapy particularly those patients who are receiving immunotherapies like check point inhibitors and immunoadjuvants. All this is very exciting and some of these have been included in our newsletter to help our microbiome community to find new areas of research and excitement. I wish our fraternity a very fruitful and exciting year ahead. which direction we are all headed.

**Prof. N. K. Ganguly**
President
Gut Microbiota and Probiotic Science Foundation (India)

# A thrust to *the science of Probiotics*

*The Gut Microbiota and Probiotic Science Foundation (India), was registered as a society, on 9th November 2011 by a group of scientists, under the Societies Registration Act XX1 of 1860. The objective of the Foundation is to provide a thrust to the science of Gut Microbiota and Probiotics in the country. It will also channelize International knowledge and expertise in the field and promote collaborative research in the development of probiotics. It aims to foster and maintain research links with scientists of similar interest.*

The Gut Microbiota and Probiotic Science Foundation (India)

To meet its objectives the Foundation will:

- Organize a Probiotic Awareness Day for school students
- Organize an Annual International Symposium by researchers providing a common scientific platform, for basic scientists and clinicians to share and exchange knowledge and views and delve into newer areas of research.
- Webcast the symposium for wider viewership.
- Publish the proceedings of the symposium as a book for distribution to libraries and healthcare professionals, across the country.
- Publish an annual Newsletter that captures the latest scientific developments in the area.
- Promote research in the area and felicitate young talent through the Young Investigator Award.

# Meet *our members*

## GOVERNING BODY MEMBERS

**Prof. N. K. Ganguly**
President

**Dr. B. Sesikeran**
Vice President

**Prof. G. Balakrish Nair**
Vice President

**Dr. Neerja Hajela**
General Secretary

**Prof. B.S. Ramakrishna**

**Prof. J. B. Prajapati**

**Prof. Ajay Bhalla**

**Prof. Rama Chaudhry**

**Prof. V. Mohan**

## SCIENTIFIC ADVISORY COMMITTEE MEMBERS

**Prof. A.P. Dash**

**Prof. Keya Lahiri**

**Prof. S.K. Mittal**

**Dr. Sarath Gopalan**

**Prof. Prasun Chatterjee**

## CO-OPTED MEMBERS

**Mr. Takeshi Yoshimoto**

**Dr. Obis David**

**Mr. Tomoyuki Iwama**

**Dr. Tetsujai Hori**


# The Year Gone By……

## 15th India Probiotic Symposium

**The 15th India Probiotic Symposium was organized by the Gut Microbiota and probiotic Science Foundation (India), in association with Post Graduate Institute of Medical Education & Research (PGIMER), Chandigarh.**

# What we learned at the 15th India Probiotic Symposium

## 1 Role of Gut Microbiome in triggering appropriate immune response to enteric infections and vaccines

**Dr. Firdausi Qadri**

*Senior Scientist and Head, Mucosal Immunology and Vaccinology Unit, Infectious Diseases Division, ICDDR B, Dhaka, Bangladesh)*

- Interactions between the host, *Vibrio cholerae* and intestinal microbiome are now recognized as factors which impact susceptibility to cholera and the ability to mount a successful immune response to vaccination.
- A stool analysis of pairs of infants from Ghana and Netherlands compared discordant immune response to oral rotavirus vaccination and showed that the gut microbiome of responders was similar regardless of the country of residence and the responders from either country had less *Streptococcus bovis* and increased organisms from the phylum *Bacteroidetes*.

## 2 Exploring the Gut Microbiome: A link between obesity and cancer vulnerability

**Dr. Wong Hei Sunny**

*Associate Professor of Nutrition, Digestion and Metabolism, Assistant Dean, Academic Medicine, Lee Kong School of Medicine Singapore*

- The intricate connection between the gut microbiome, obesity and risk of cancer was unravelled. Alterations in the microbial composition can affect metabolic pathways, inflammation and immune response thereby contributing to obesity and cancer risk.

## 3 Gut Microbiota and Probiotics / Synbiotics therapy to prevent infectious complications in critically ill patients

**Dr. Kentaru Shimizu**

*Associate Professor, Osaka University Hospital. Department of Traumatology and Acute Critical Medicine, Osaka University, Graduate School of Medicine, Osaka, Japan*

- The gut is the motor of multiple organ failure for critically ill patients and gut dysfunction is recognized as a causative factor in promoting systemic inflammation with infectious complications and multiple organ dysfunction. Comprehensive metagenomic analysis using 16 S ribosomal RNA gene indicated a marked decrease in *Blautia*, *Fecalibacterium* and *Clostridium* in the faces. Short chain fatty acids decreased significantly, and pH of faces increased. Treatment with probiotics and synbiotics has been reported to attenuate systemic inflammation, reduce infectious complications and ventilator associated pneumonia including sepsis.

## 4 Probiotics during pregnancy for improving the health of the newborn by modulation of the gut microbiome

**Prof Patricia Conway**

*Visiting Professor, Singapore Centre for Environmental Life Sciences Engineering (SCELSE), Singapore*

- Because the maternal gut microbiome is linked to complications, e.g. gestational diabetes and preeclampsia, probiotics given during pregnancy offers an attractive possibility for preventing undesirable health outcomes during pregnancy and in the longer term.
- There is considerable evidence that probiotics during pregnancy can provide health benefits not only for the mother but also the child. It is established that probiotic bacteria given to the mother can be detected in the foetus and that maternal probiotic supplementation has resulted in

decreased eczema, prolonged gestational age, and reduced risk of death and incidence of necrotising enterocolitis in the infant. Meta-analyses have highlighted that probiotics can improve glycaemic control, blood lipid profile, reduce inflammation and oxidative stress in gestational diabetic mothers. A recent meta-analysis has reported that there is limited evidence to suggest that probiotics do not affect the risk of preeclampsia.

Additional definitive clinical studies are required for conclusive statements. It needs to be flagged that the effectiveness of the probiotic used is dependent on the strain used, the dose and the supplementation regime.

5

## Understanding the tolerance of *Lacticaseibacillus paracasei* Shirota in the Digestive Tract

**Kosuke Kato**

*Associate Senior Researcher, Yakult Central Institute, Yakult Honsha Co. Ltd, Tokyo, Japan*

- The viability and survival ability of the probiotic bacteria *Lacticaseibacillus paracasei* Shirota is because of LCPS - 1, a polysaccharide bound to its cell wall. An LCPS – 1 deficient mutant was constructed, and it was observed using a gastric stress model, wild type LcS was more acid and bile tolerant than LCPS - 1 deficient strain. Characterizing and modifying cell wall polysaccharides in probiotic strains could improve their gastrointestinal stress tolerance.

6

## Decoding Beta Lactamase based antibiotic resistance: Crystallographic Breakthroughs shaping the future of AMR diagnostics

- At the Indian Institute of Technology, Roorkee, an innovative suite of diagnostic tools were designed to revolutionize Antimicrobial Resistance diagnostics; the BL tester, Competitive BL tester, Environmental BL- Tester, Advanced BL- tester and cutting edge SRET based BL tester. These breakthroughs hold promise of transforming global AMR diagnostics and therapeutics heralding a new era in the fight against this relentless global health challenge.

7

## Gut Microbiota Derived Succinate induces intestinal inflammation in Ulcerative Colitis

Prof. Amit Awasthi

*Senior Professor, Immunobiology Laboratory, Translational Health Science and Technology Institute, Faridabad, India*

- Retinoic acid (RA) is known to inhibit intestinal inflammation and while the mechanism is not well understood, it appears that RA supresses colonic succinate and IL 9 producing Th9 cells by modulating the gut microbiota and limiting intestinal inflammation in experimental colitis. RA failed to suppress inflammation in microbiota depleted mice, faecal microbiota transplant from RA treated donors ameliorated intestinal inflammation in colitis. RA promoted the abundance of succinate consuming while decreasing succinate producing gut microbes thereby limiting tissue inflammation.

8

## Biomodulation of Gut Microbiome by Faecal Microbiota Transplantation as therapeutic strategy in preclinical animal model of multiple sclerosis

**Dr. Sudeshna Kar**

*Chief Scientist, Artemis Hopital, Gurugram, Haryana, India*

- A cuprizone induced mice model of Multiple Sclerosis (MS) showed that heterologous faecal microbiota transplant from Multiple Sclerosis disease mice into MS mice caused aggravated weight loss and enhances axonal injury. Using a FMT super donor that showed more than 90% efficacy in alcoholic hepatitis, to restore healthy gut microbiome in MS mice the preclinical safety and potential of FMT as MS disease modifier was studied. High through put sequencing revealed that levels of phylum Firmicutes, family *Christensenellaceae* and genus *Butyricimonas* were reduced in faecal samples of MS mice and FMT remarkably reshaped gut microbiome.

## 9 Antimicrobial Resistance and Faecal Microbiota transplant

**Prof. Vineet Ahuja**

*Professor, Gastroenterology, Associate Dean, Research, All India Institute of Medical Sciences, New Delhi*

- A randomized double blind sham controlled trial was conducted to assess the effectiveness of fecal microbiota transplant in causing decolonization of MDR organisms and the associated alterations in the gut microbiome and virome of recipients. FMT partially restored microbial diversity and reduced pathogenic species, however clinical outcomes and MDR decolonization rates were similar between FMT and Sham groups.

## 10 Pancreas - Microbiota Crosstalk – Partners in Virtue and Crime

**Dr. Rupjyoti Talukdar**

*Director, Pancreatology and Head, Pancreas research group and Gut Microbiome Research, Asian institute of Gastroenterlogy, Hyderabad, India*

- Recent studies highlight the significant role of gut microbiota in chronic pancreatitis (CP) and pancreatic ductal adenocarcinoma (PDAC), revealing their impact on disease severity, metabolic dysfunction, and oncogenesis. In CP patients, significant alterations in gut microbiota were observed, particularly a reduction in *Faecalibacterium prausnitzii* and *Ruminococcus bromii*, which correlated with increased plasma endotoxin and metabolic abnormalities such as diabetes. The *Firmicutes: Bacteroidetes* ratio was higher, and lipopolysaccharide (LPS) synthesis pathways were elevated, contributing to systemic inflammation and insulin resistance.
- Another study explored fungal and bacterial interactions in CP patients, revealing a dysbiotic fungal community, particularly in those with diabetes. The fungome showed reduced diversity, with an increase in *Aspergillus* and *Candida* species, which were linked to metabolic disturbances, including elevated fatty acid-binding proteins and altered metabolome. These findings suggest an intricate interplay between fungal and bacterial populations in CP progression.

## 11 Mysteries of the Milk Microbiome

**Dr. Sourabh Dutta**

*Professor, Neonatology division, Department of Pediatrics at PGIMER, Chandigarh*

- Researchers have identified identical bacterial signatures in maternal feces, blood, breast milk, and infant faeces, reinforcing the hypothesis of a gut-mammary axis. Longitudinal analysis of human milk samples reveals significant variations in bacterial composition across lactation stages and geographic regions. Dominant phyla include *Firmicutes, Bacteroidetes*, *Actinobacteria*, and *Proteobacteria*, with Indian populations exhibiting a *Pseudomonas*-dominant microbiome.

## 12 Acceptability of Microbiota-Directed - Complementary Foods in Treating Indian Children with Moderate Acute Malnutrition-eACT-MAM Pre-Proof of Concept Study

**Dr. Bireshwar Sinha**

*Scientist & Deputy Director at the Society for Applied Studies, New Delhi, India, and a Clinical and Public Health Fellow at the India Alliance DBT/ Wellcome Trust*

- A pre-proof of concept, multicentric, open-labelled, age-stratified, randomised controlled trial was done in children aged 6-18 months with MAM (Moderate Acute Malnutrition). After a run-in period of 2 weeks, the participants were supplemented with MDCF or RUSF for 4 weeks through direct observation and followed up for another 2 weeks post intervention. The pre-proof-of-concept study demonstrates good acceptability and safety of MDCF amongst Indian children with MAM including the age group of 6-18 months of age.

## 13 Aging-Driven Gut Dysbiosis Impairs Dendritic Cell Tolerance and Immune Homeostasis

**Prof. Javed N Agrewala**

*Former faculty CSIR-Institute of Microbial Technology, Chandigarh, Visiting Scientist, Royal Postgraduate Medical School, London & Trudeau Institute,New York*

- The impact of aging-induced gut dysbiosis on the loss of DC tolerance showed that DCs derived from either aged (DCOld) or gut-dysbiotic young (DCDysbiotic) mice, but not from young (DCYoung) mice, exhibited a marked loss of tolerance. This was evidenced by their impaired ability to induce Tregs and regulate CD4+ T cell overactivation. The mechanism observed was due to the depletion of *Lactobacillus plantarum*, which led to NF-κB hyperactivation, a diminished Treg frequency, an upregulation of pro-inflammatory cytokines and a concurrent decline in anti-inflammatory mediators. Notably, we observed a significant reduction in *Lactobacillus spp.* within the gut microbiome of aged mice.

## 14 Towards investigating the anticancer role of gut microbiota-derived metabolites

Dr. Anil Kumar

*Staff Scientist-V, Gene Regulation Laboratory, National Institute of Immunology, New Delhi*

- Investigated anti-tumor activity of three gut microbiota-derived metabolites, 4-ethylphenyl sulfate (4EPS), indoxyl sulfate (IndS) and p-Cresyl Sulfate (pCS) on colon cancer cells. Using HCT-116 colon cancer cells, in-vitro cell-based assays were done that demonstrated 4EPS, IndS and pCS can reduce cell proliferation, cell viability and ATP content in dose and time dependent manner. investigated anti-tumor activity of three gut microbiota-derived metabolites, 4-ethylphenyl sulfate (4EPS), indoxyl sulfate (IndS) and p-Cresyl Sulfate (pCS) on colon cancer cells. These metabolites enhanced the apoptosis and ROS production as compared to control cells.

## 15 Features of resident gut microbiota associate with Bifidobacterium abundance / colonization in human gut microbiomes

**Dr. Tarini Shankar Ghosh**

*Department of Computational Biology, Indraprastha Institute of Information Technology Delhi*

- A global investigation of ~ 40,000 gut microbiomes collected across > 100 studies to investigate which non-Bifidobacterial members of the resident gut microbiome associate with the colonization of eight major Bifidobacterial species. Using ensemble machine learning across multiple cohorts, we show that abundance of different Bifidobacteria is predictable to various extents depending upon the composition of the baseline microbiome, with *Bifidobacterium longum* being predictable with the highest efficacy, followed by Bifidobacterium adolescentis. Not withstanding species-specific variation, we observed *Collinsella aerofaciens* as a common marker of high Bifidobacterium abundance across all eight species.

# TOP 21 Abstracts

## 16th India Probiotic Symposium

**Siwani Agrawal**
All India Institute of Medical Sciences, Bhubaneswar odisha

**Prenatal NaYoBa co-supplementation reprograms maternal microbiomes and accelerates infant microbial maturation to improve growth trajectories.**

**Nishu Choudhry**
Institute of Liver and Biliary Sciences, New Delhi, India

**Caproic Acid Increased by Fecal Microbiota Transplantation Alleviates Steatosis and Protects against Ethanol-Induced Hepatotoxicity (In Vivo and In Vitro)**

**Sunil Nagpal**
TCS Research, Tata Consultancy Services Ltd., Pune, Maharastra

**Metabolic modelling-based framework for prioritization of nutrient resilient probiotics**

**Arpita Bhatt**
Postgraduate Institute of Medical Education and Research, (PGIMER), Chandigarh

**Mucosa-Associated Microbiome Signatures in Indian UC Patients: Elevated *Firmicutes-to-Bacteroidota* Ratio and Enrichment of Pathobionts**

**Sujith Sri Surya R**
Sri Ramasamy Memorial Medical College Hospital and Research Centre, Chengalpattu, Tamil Naidu

**Anti-tumor Activity of Antibody-Conjugated Intracellular Intestinal Bacteria for Targeted Therapy of Gastrointestinal Malignancies**

**Sakshi Kataria**
Sri Ramaswamy Memorial University, Sonipat Haryana

**Bacteriophages as therapeutics to combat multidrug-resistance against *Escherichia coli and Salmonella* typhi.**

**Shivangi Tyagi**
Regional Centre for Biotechnology, Faridabad Haryana

**Understanding the Structural Features and Host Interactions of *Bifidobacterial* pili**

**Manorama Kumari and Pradip Behare**
ICAR-National Dairy Research Institute, Karnal Haryana

**Probiotic Functionality and Genomic Validation of Vitamin B12 Producing *Limosilactobacillus reuteri* NCDC958**

**Nehal**
Thapar Institute of Engineering and Technology, Patiala, Punjab

**Modulation and adaptation of gut microbial metabolic functions under probiotic and postbiotic treatment using a novel in vitro anaerobic pseudo- colon system**

**Shriram Mahajan**
National Institute of Pharmaceutical Education & Research, Guwahati, Assam

**Translational potential of *Lactobacillus crispatus* isolated from GARBH-Ini cohort to prevent cardiometabolic disorder**

**Bhawna Verma**
Translational Health Science and Technology Institute, Faridabad, Haryana

**Effect of gut mycobiome dysbiosis on host's T cell response during experimental colitis**

**Shemmy Sadanandan**
Central University of Kerala, Kasaragod, Kerala

**Genome-Resolved Profiling of Antimicrobial Resistance in Chicken Gut Microbiomes**

**Varsha Prabhakaran**
Pondicherry University, Puducherry

**Donkey Milk-Derived Probiotics Regulate Cholesterol Metabolism and Protect the Gut- Organ Axis Across the Lifespan in High-Fat Diet-Induced Metabolic Syndrome**

**Anagha Gawade**
Symbiosis School of Biological Sciences, Symbiosis International (Deemed University), Pune, Maharashtra

**Adaptive laboratory evolution driven improvement of folate production in *Lactiplantibacillus plantarum* JGR2.**

**Deepak Kumar**
National Institute of Pharmaceutical Education and Research, Mohali, Punjab

### *Levilactibacillus brevis* lab-6 exerts neuroprotective effects in MPTP-induced mouse model of Parkinson's disease

**Deepali**
National Institute of Pharmaceutical Education and Research, Hyderabad, Telangana

### *Lactobacillus helveticus* Improves Controlled- Cortical Impact Generated Brain Injury by Modulating Aquaporin-4 and Gut-Brain Axis in Mice

**Abhijit Sanjiv Kulkarni**
National Centre For Cell Science (NCCS), Pune, Maharashtra

### Gut Microbiome Characterization and Probiotic Isolation from Indian Schedule Tribes

**Pratik Devadiga**
Indian Council of Medical Research – National Institute for Research in Reproductive and Child Health, Mumbai, Maharashtra

### Gut microbiome-immune crosstalk regulates mucosal homing of immune cells during HIV- TB coinfection

**Giriprasad Venugopal**
Believers Church Medical College and Hospital, Thiruvalla, Kerala

### Endogenous Alcohol-Producing Gut Dysbiosis in MASLD: Can *Lactobacillus* Be the Missing Probiotic Link?

**Binapani Sanjrambam**
University of Science and Technology, Meghalaya

### A Metagenomic study of gut microbes of pregnant women in different communities of North-East India.

**Manoj Konde**
Seth G.S. Medical College & KEM Hospital, Mumbai, Maharashtra

### Evaluation of Antidepressant Effect of Probiotics (*Bacillus clausii* and *Saccharomyces boulardii*) in Unpredictable Chronic Mild Stress Induced in Swiss Albino Mice.

# Unlocking Potential

## *Young Investigators Awards*

## 2025

1

*prize*

**Sucheta Guleria**
(Postgraduate Institute of Medical Education and Research (PGIMER), Chandigarh, India)

"Giardia Infection is Associated with Altered Community Structure of Murine Gut Microbiome Post Antibiotic and Probiotic Treatment"

2

*prize*

**Rajdeep Dalal**
(Translational Health Science and Technology Institute, Faridabad, Haryana, India)

"Commensals-Derived Succinate Impels Colonic Inflammation in Ulcerative Colitis"

2

*prize*

**Anand E P**
(TCS Research, Pune, India)

"Knowledge Graph Guided Personalized Probiotic and Dietary Recommendations for Inflammatory Bowel Disease (IBD)"

3

*prize*

**Mitali Inamdar**
(National Centre for Cell Sciences, Pune, India)

"Maternal Microbial Succession Shapes Infant Gut Microbiome Development: A Metataxonomic and Metabolomic Investigation"

★

Consolation *prize*

**Akash Kumar Kharwar**
(National Institute of Pharmaceutical Education and Research (NIPER), Hyderabad, India)

"*Lactobacillus plantarumand Lactobacillus helveticus* Alleviates Propionic Acid and Valproic Acid Generated Autism Spectrum Disorder in Rats"

# Unraveling the mystery of Gut Microbiota & Probiotics

1

**Metabolic modeling reveals determinants of prebiotic and probiotic treatment efficacy across multiple human intervention trials.**

Quinn-Bohmann N *et al*, Plos Biology, February 2026

2

**Bioengineered ROS-tolerant probiotic reshapes gut microbiota-host axis to ameliorate type 2 diabetes in male mice.**

Mao C *et al*, Nat Commun, March 2026

3

**Effect of Supplementation with *Lactobacillus reuteri* SGL 01 in Lactating Women on Breast Milk and Neonatal Gut Microbiota: An Exploratory, Randomized, Open-Label Clinical Trial**

Pagliarini E *et al*, Nutrients 2026

4

**A Nature study identified imidazole propionate, produced by specific gut bacteria, as both a contributor to atherosclerosis development and a promising biomarker of subclinical disease**

Mastrangelo, A *et al*, Nature 645, 54–261 (2025)

5

**Innate immune system signaling and intestinal dendritic cells migration to the brain underlie behavioral changes after microbial colonization in adult mice.** New preclinical research from McMaster University found that intestinal dendritic cells can migrate to the brain and influence behavior.

Philip V, Kraimi N, Zhang H, *et al*, Brain Behav Immun. July 2025

6

**Stress-related psychiatric disorders disrupt circadian cycles, which further dysregulates the gut microbiota, exacerbating stress responses.**

New findings in Cell Metabolism by Dr. Cryan and his group, revealed that by regulating corticosterone rhythms, influencing stress-related brain pathways, and modulating time-specific stress responsivity, gut microbes help maintain a balanced interaction between the circadian and HPA systems.

7

**Evidence for brain-to-gut and gut-to-brain pathways in primary care patients with disorders of gut-brain interaction, inflammatory bowel disease and gastroesophageal reflux disease.**

Koloski NA, Jones MP, Shah A, *et al*. Neurogastroenterol Motil. December 2025

# PROBIOTIC

## Science-

### Where We Stand Today!!

1. **A new paper led by Prof. Sarah Lebeer PhD, published in Trends in Microbiology, provides an overview of what's currently known about the diversity of the vaginal microbiota in women globally. The paper highlights several research gaps that are being addressed in the years ahead with more inclusive research strategies.**

   Lebeer S *et al*, Trends in Microbiology, November 2025

2. **A new perspective article in Nature Microbiology makes 10 recommendations for designing, conducting, and reporting clinical trials of prebiotics and probiotics that support best practices in microbiome research.**

   **Ten recommendations to guide the design and conduct of trials of prebiotics and probiotics:**

   1. Consider whether and how to harmonize the diet of the study population before intervention by using different degrees of researcher intervention
   2. Participants should not be involved in religious festivals or holidays if their dietary intake is altered
   3. The composition of prebiotic or probiotic, and of the delivery matrix, the source, the dose/viable cell numbers per dose of the active ingredient, and the manufacturer should be reported, considering that these variables can affect prebiotic and probiotic effectiveness
   4. Details of prebiotic or probiotic intake (number of doses, timing, meals) should be reported, as well as participants' adherence to the treatment
   5. Appropriate microbiome analyses should be performed to accurately interpret the role of background diet versus intervention-specific changes
   6. Dietary assessment should be performed at baseline and end of intervention in human intervention studies where diet is one inclusion or exclusion criterion
   7. Dietary assessment should record microbiome-relevant diet exposures, including fermented foods and postbiotics, although current food databases do not include relevant food information that can affect the microbiome (food additives, cooking methods, and polyphenols, among others)
   8. Dietary assessment should include detailed information on nutrients, food, food groups, or dietary patterns, as long as they can affect probiotics and prebiotics effectiveness
   9. The method (food records, 24h recall, or food frequency questionnaire) and duration of diet assessment should depend on the research question and exposure of interest
   10. A dietitian or nutritionist with research expertise should be on the team, and will be involved not only in the study design but also in accompanying the participants, and dietary assessment tools and data analyses

# International Scientific Association Of Probiotics & Prebiotics (ISAPP)

Definitions Of Probiotics, Prebiotics, Synbiotics & Postbiotics

## PROBIOTICS

"Live microorganisms that, when administered in adequate amounts, confer a health benefit on the host."

## PREBIOTICS

"A substrate that is selectively utilized by host microorganisms conferring a health benefit."

## SYNBIOTICS

"A mixture comprising live microorganisms and substrate(s) selectively utilized by host microorganisms that confers a health benefit on the host."

## POSTBIOTICS

"Preparation of inanimate microorganisms and/or their components that confers a health benefit on the host."

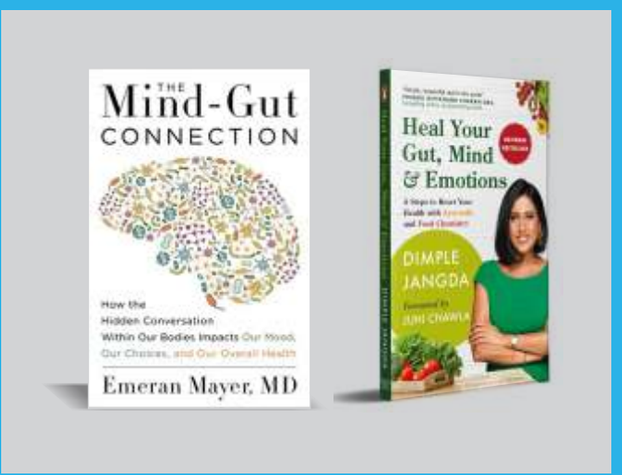
## GUT HEALTH

Although the term "gut health" is used frequently, it previously had no scientific definition. ISAPP led an expert scientific panel that put forth the definition as "a state of normal gastrointestinal function without active gastrointestinal disease and gut-related symptoms that affect quality of life."

# Superdonor-Derived FMT: A Promising Therapeutic Strategy in Severe Alcoholic Hepatitis

The term “superdonor” refers to individuals whose stool yields superior fecal microbiota transplantation (FMT) outcomes compared to standard donors. In severe alcoholic hepatitis (SAH), the unique bacterial and fungal composition of superdonors enhances engraftment efficiency and treatment efficacy. Keystone bacterial and fungal species serve as critical determinants of FMT success, influenced by host genetics and diet. Moving beyond the “one stool fits all” concept, superdonor-derived FMT significantly reduces disease severity in SAH and can extend patient survival by up to one year. Microbial profiling of donors and recipients before and after FMT revealed that donor microbial diversity strongly influences therapeutic success. Responders consistently received transplants from donors with higher Shannon’s, Simpson’s, and Chao diversity indices. The superdonor exhibited significantly greater diversity than other healthy donors, with elevated Firmicutes and Bacteroidetes levels and reduced Actinobacteria and Proteobacteria. Key taxa included Prevotella denticola (46.3%), other Prevotella spp. (9.36%), and Faecalibacterium prausnitzii (8.42%)—all higher than in standard donors. Notably, F. prausnitzii, a butyrate-producing, anti-inflammatory commensal, was more abundant in the superdonor and has been consistently associated with improved engraftment and better outcomes in SAH patients. In severe alcoholic hepatitis (SAH), gut dysbiosis—marked by loss of beneficial bacteria and overgrowth of harmful microbes—worsens disease outcomes. Superdonors, enriched in Prevotella denticola and Faecalibacterium prausnitzii, provide high microbial diversity that restores gut balance, reduces inflammation, and improves gut integrity. FMT from superdonors outcompetes ammonia-producing microbes, lowering toxic metabolites, improving hepatic encephalopathy, and enhancing cognitive function. Clinically, these benefits translate to significant improvements in survival and liver function. In seven SAH patients, superdonor FMT reduced MELD and Child-Pugh scores, indicating better liver and kidney performance, and lowered serum bilirubin levels from 20 to 3□ mg/dL, confirming superior efficacy over standard donors.

## In the *Spotlight*



1.

**The 2025-2030 Dietary Guidelines for Americans recognize the role of the microbiome for health.**

2.

**The gut microbiome itself follows a circadian rhythm, with daytime feeding favouring SCFA-producing Firmicutes and overnight fasting supporting Bacteroidetes and bile-acid turnover.**

3.

**The US FDA announced that it will allow the first Qualified Health Claim related to a fermented food – yogurt.**

a. Eating yogurt regularly, at least 2 cups (3 servings) per week, may reduce the risk of type 2 diabetes. FDA has concluded there is limited information supporting this claim.

b. Or Eating yogurt regularly, at least 2 cups (3 servings) per week, may reduce the risk of type 2 diabetes according to limited scientific evidence.

# Did you *Know?*

4.

**Chronic constipation affects around one in ten adults worldwide. The new British Dietetic Association's guidelines show that psyllium, certain probiotic strains and magnesium oxide supplements can help to improve constipation.**

# A Peep into the Calendar of Events 2026

**Feb 26, 2026**

Microbiology Society: Safe Microbiome Perturbations - Gut Microbiome and Probiotics.

Online

**Mar 14-15, 2026**

Gut Microbiota for Health World Summit (GMFH) featuring workshops on clinical practice, diet, and therapeutic interventions.

Porto, Portugal

**Mar 26-28, 2026**

4th Edition of International Conference on Probiotics & Prebiotics (Probiotics 2026) focusing on science-backed well-being.

Singapore/Hybrid

**Mar 27-28, 2026**

16th India Probiotic Symposium: "Gut Microbiome - From Cradle to Centenarians".

Delhi, India

**Apr 3-5, 2026**

4th International Conference on Probiotics, Prebiotics & Gut Health.

Location TBA

**Jun 22-24, 2026**

19th International Scientific Conference on Probiotics, Prebiotics, Gut Microbiota and Health (IPC 2026).

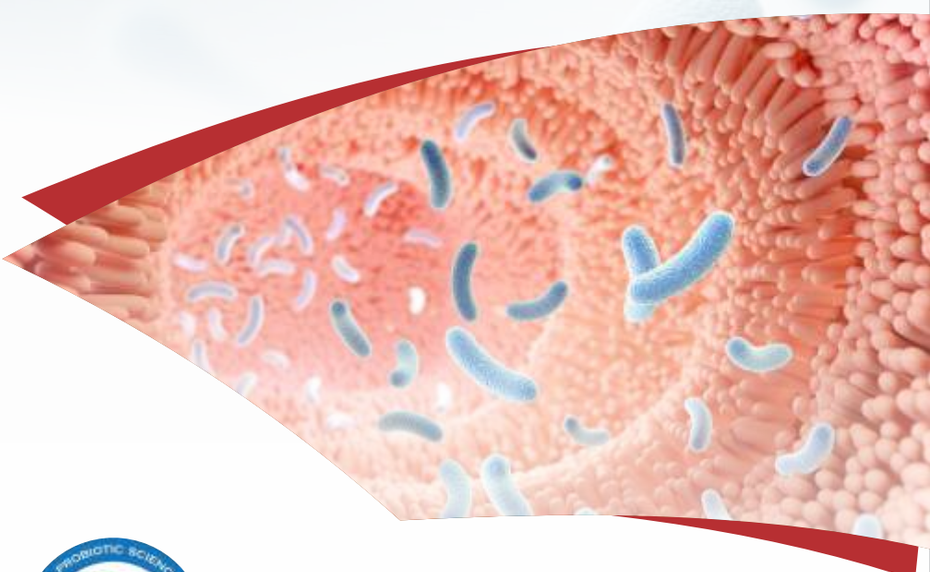
Kraków, Poland

**Throughout 2026**

Various regional meetings on probiotics and nutrition, including the 16th World Probiotics, Nutrition & Gut Health Conference (PROBIOTICSUCG 2026)

# *Attributes of a healthy* Gut Microbiome

- It should be highly diverse – it contains many different species living together.
- It needs resilience – the ability to recover quickly and completely after a perturbation (such as a course of antibiotics).
- A healthy microbiome shows functional redundancy – which means that multiple species within the ecosystem can perform the same tasks, so that the system keeps working even if some species disappear.
- It should have metabolic flexibility - microbes are capable of metabolising different food sources and adapting when the diet or environment changes. In this way, microorganisms are able to survive when nutrient availability changes.

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