

INTERNATIONAL
SCIENTIFIC ASSOCIATION
FOR
PROBIOTICS AND PREBIOTICS™

International Scientific Association for Probiotics and Prebiotics

2018 Meeting Report

June 5-7th, 2018

Singapore

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Executive Summary



ISAPP Plenary Sessions – Furama Riverfront Hotel, Singapore 2018

June 5-7th 2018 ISAPP held its first Asian meeting in Singapore. This open registration meeting was a huge success with over 241 attendees from 34 countries. In attendance were 52 IAC representatives, 21 invited experts, 24 speakers, and 18 SFA members. The other 126 participants were open registered academics/clinicians, industry, and students.

Two days of plenary talks focused on the latest science featuring prebiotic and probiotic use in: pediatrics, oral health, allergy immunotherapy, the gut microbiome throughout life, synbiotics, liver disease, honey bee health, chronic gut disorders, and more. The meeting also featured an interesting talk about the changes coming in the nomenclature of the genus *Lactobacillus*.

The plenary, open sessions were followed by a Discussion Forum on June 7th for invited experts and Industry Advisory Committee Members. The discussion groups focused on:

- Harmonizing Global Probiotic and Prebiotic Food/Supplement Regulation
- Fermented Foods for Health: East Meets West
- Potential Value of Probiotics and Prebiotics to Treat or Prevent Serious Medical Issues in Developing Countries
- Prebiotics as Ingredients: How Foods, Fibres and Delivery Methods Influence Functionality

Finally, there were over 70 posters presented at the meeting featuring the latest prebiotic and probiotic research from around the world.

Slides and abstracts for the meeting can be found on the ISAPP website under the “[Annual Meetings](#)” tab, available to meeting participants only.



Acknowledgments

ISAPP gratefully acknowledges the support of the [2018 Industry Advisory Committee member companies](#), whose support made this meeting possible. Further, ISAPP would like to thank the generous support of two IAC companies, Yakult (Platinum sponsor) and P&G (Silver sponsor), who provided additional sponsorship for the open registration component of this meeting, June 5-6.

2018 ISAPP Board of Directors: Karen Scott, PhD, President, UK; Seppo Salminen PhD, Finland, Vice President; Colin Hill, PhD, Past- President, Ireland; Dan Merenstein MD, Secretary, USA; Robert Hutkins PhD, Treasurer, USA; Members at Large: Gregor Reid PhD, Canada; Glenn Gibson PhD, UK; Michael Cabana, MD, USA; Sarah Lebeer PhD, Belgium; Mary Ellen Sanders PhD, USA, Executive Science Officer.



Back row: Bob Hutkins, Glenn Gibson, Seppo Salminen, Karen Scott, Colin Hill
 Seated: Dan Merenstein, Sarah Lebeer, Gregor Reid, Mary Ellen Sanders, Michael Cabana
 Absent: Eamonn Quigley MD, USA

Welcome Message from the ISAPP Conference Chairs

Dear ISAPP Singapore Attendee,

How does it feel to be at ISAPP's first meeting in Asia?

If you're half as excited as we are, you must be really looking forward to a fantastic conference! Topics of relevance to Asia and the wider scientific field - at a time when publications on probiotics have reached well over 18,000 and on prebiotics almost 4,000. ISAPP's two consensus papers are flying high in downloads, citations and Altmetric index.

You've seen the program, so you know what to expect. But, make sure you visit the posters and share knowledge with the presenters. Everyone is here to listen, learn and advance the field. The Students & Fellows Association is here as well, so get to feel young again and pass on your experience to their eager ears!

The Late Breaking News session could have been twice as long, but the 12 talks promise to be stimulating.

Members of the ISAPP Board of Directors can be recognized by their faces and name badges, and all will welcome your feedback on the meeting. Likewise, the two panel discussions are designed to have active audience participation, so find a microphone and share your views.

Thanks to our Singapore hosts, the Ace-Daytons Secretariat, the companies comprising our Industry Advisory Committee and special platinum sponsor Yakult Honsha and our silver sponsor, P&G. Thanks also to Dr. Mary Ellen Sanders, Heather McCallin and Marion Vinck for their wonderful efforts that have gotten us here.

If we do one thing really well at ISAPP (apart from the science), we make every effort to have all attendees feel welcomed at our meetings. Such events are only a success because of you and the program. So, enjoy the meeting and make lots of new friends.

Best wishes,



Yuan Kun Lee MSc, PhD
Co-Chair
National University of Singapore



Gregor Reid PhD, MBA, FRSC
Co-Chair
Western University, Canada

Discussion Groups (Summaries Submitted by Group Chairs)

Group 1: Possibilities of Harmonizing Global Probiotic and Prebiotic Regulations

Chairs: Seppo Salminen, Finland, Yuan Kun Lee, Singapore, and Gabriel Vinderola, Argentina.

A discussion forum on harmonizing global probiotic and prebiotic food/supplements regulations was convened as part of the ISAPP discussion forum. The forum was attended by more than 30 academic, researchers, industrial



partners and regulators from countries including Japan, Finland, Thailand, The Netherlands, USA, Singapore, Malaysia, Hong Kong, Argentina, India, France, New Zealand and Vietnam.

The panel had the following objectives:

1. To promote understanding of current probiotic and prebiotic regulations in different countries
2. To discuss how to make progress on global harmonization of regulatory approaches to probiotics and prebiotics
3. To develop minimum standards.

The final goal of the discussion forum is to produce a consensus document about the minimum criteria a probiotic food or supplement should meet. This document is intended to be provided to the *Codex Alimentarius* (CA) Committee on Nutrition and Foods for Special Dietary Use (CCNFSDU) CCNFSDU through country representatives that will be contacted by each participant of the panel. During the discussion forum, the participants agreed that probiotics are “live microorganisms that, when administered in adequate amounts, confer a health benefit on the host” ([Hill et al., 2014](#)). Participants also agreed that for a microorganisms to be called a probiotic within a food or food supplement, the following minimum criteria should be met: identification to the strain level; naming according to valid microbiological nomenclature; safety for intended use; providing sufficient levels of live

microorganisms to deliver the health benefit, until the end of shelf life; and deposit in an international culture collection, providing evidence of health benefit from a human intervention study.

The scope of the discussion group also included minimum criteria for prebiotics. The definition of prebiotics was accepted as “A substrate that is selectively utilized by host/commensal microorganisms conferring a health benefit” ([Gibson et al., 2017](#)). The participants agreed that for a substance to be called a prebiotic, within a food or food supplement, the following minimum criteria should be met: adequate chemical characterization; safety for intended use; selectively utilized by host microbes; sufficient amount to deliver the health benefit until the end of shelf-life; and evidence of health benefit from human studies. The benefit should be mediated by a positive impact on the microbiota, although it is recognized that causality may not be able to be confirmed. Since prebiotics are not part of the proposal made by the International Probiotic Association to the CA for the production of a harmonized codex standard in the 2017 meeting in Berlin, they will not be included in this initial action. A different and new action must be taken for prebiotics.

Group 2: Fermented Foods for Health: East Meets West

Chairs: Bob Hutkins, USA, Paul Cotter, Ireland, and Liu Shao Quan, Singapore

Fermented foods have long been important dietary components in nearly every culture on every continent. Although numerous differences exist for how these foods are prepared, fermented foods generally serve as significant sources of proteins, vitamins, minerals, and other nutrients. Importantly, many fermented foods also contain live microbes that may contribute to human health. However, whereas fermented foods produced in Europe, United Kingdom, North America, and the Pacific Rim often depend on defined starter cultures, those made in Asia and Africa usually rely on natural fermentations. Thus, the main goal of this ISAPP panel was to review how these differences in substrates and manufacture affect the microbial composition of fermented foods, with an emphasis on the potential nutritional and health outcomes of these foods. Among the conclusions reached in this discussion were: (1) Despite their important nutritional role, as much as 90% of the fermented foods consumed globally are not commercially produced; (2) Microbes in fermented foods cannot be considered as probiotic, but often contain similar species that produce the same beneficial metabolites; (3) In many regions, per capita consumption data do not exist, making it difficult to correlate consumption with health status; (4) More research is needed to establish mechanisms for how fermented foods contribute to health; (5) The diversity of microbes present in naturally-fermented foods has the potential to contribute to greater diversity in the GI tract, but little data exist to support this hypothesis; (6) In resource-poor regions, yogurt and other fermented foods can improve public health and provide opportunities for economic development; (7) Educational efforts are necessary to explain fermentation principles, the potential health benefits of fermented foods, and why fermented foods should be included in nutritional guidelines; (8) Manufacturers of fermented foods, whether small or large, should have sustainable development goals.



Group 3: Potential Value of Probiotics and Prebiotics to Treat or Prevent Serious Medical Issues in Developing Countries

Chairs: Dan Merenstein, USA, Reuben Wong, Singapore, and Colin Hill, Ireland

The purpose of our group was to discuss the challenges of conducting studies and facilitating evidence-based usage of probiotics and prebiotics to treat or prevent serious medical issues, such as sepsis, *Clostridium difficile* infections and necrotizing enterocolitis in resource poor areas. We chose these more severe infections due to both the limited medical resources in some of these countries and the potential significant impact of probiotics in treating and preventing these infections in resource-poor areas. However, these populations may have greater risk from probiotic use in serious clinical conditions.



We heard from six invited experts. Presentations covered challenges in conducting research in resource-poor areas, highlighted risks, gave examples of successful projects and highlighted changes that are needed to make progress in this area. We agreed that the potential benefits of probiotic use in resource-poor areas greatly outweighs the risk. We agreed to reach out to Rapid Response Teams to offer our expertise to help them use probiotics in disaster areas. We also agreed to work with the IAC, governments, agencies, funders to offer help, teach and provide direction to as needed. It was pointed out that many of these resource-poor areas desire to implement probiotics but are not sure what approach to take.

Group 4: Prebiotics as Modulators of the Gut Microbiota: Functionality and Geographical Issues

Chairs: Glenn Gibson, UK and Karen Scott, UK

Effect of food incorporation on prebiotics

An *in vivo* study assessing B-GOS intervention in overweight persons induced changes similar to that seen in an animal model of MetS with FOS. This led to a human RCT (GOS prebiotic incorporated into bread and juice rather than powdered supplement). IL6 in control bread group was elevated but not the prebiotic



version. Decreased TAG occurred with orange juice. It is important to bear in mind that not all prebiotics may have the same effect when incorporated into food. A human RCT with 2 green kiwifruit (4 week intervention) vs psyllium showed improvements in constipation in IBS. This showed the possibilities for prebiotic effects in whole foods.

Specific manipulations

In vivo studies comparing the effect of FOS/inulin mix on the faecal microbiota demonstrated that there was direct stimulation of multiple bacterial groups (not just bifidobacteria). If target bacteria are not present, the prebiotics may not be effective, leading to possibilities for synbiotics.

Assessing functionality

Metabolic profiling is used to understand interventions, microbiota effects and outcome. Biological samples *in vivo* can be blood, urine, faeces, tissue, with correlation models for microbiota and metabolites. For example, model 2 datasets together to see prebiotic influences (microbiota and metabolites) perhaps with metagenomics to identify host/microbial metabolites.

Selected health effects 1: Food intolerance/allergies

WHO guidelines on prebiotic and probiotics in allergic disease are available. Probiotics are recommended for mothers to use pre and postnatally, for babies at risk of allergic disease, and babies if not breastfed. Prebiotic use is unclear – no recommendations. This requires clarification: type, dose, host factors, which allergic condition.

Selected health effects 2: Fatty acid metabolism

Prebiotics can impact lipid metabolism. Prebiotic foods may contain other ingredients that influence fatty acid metabolism. Roles are related to SCFA production (antioxidant, anti-inflammatory, lipid reduction).

Indigenous plants as prebiotics

Prebiotics in Asia are gaining momentum. Consumption, processing, cooking, dose, food matrix, breeding programme all influence functionality. Some supplements are using prebiotics with other bioactives for adults and children. These are largely unregulated.

Economic considerations

Prebiotics in functional foods has been led in Asia by Japan. They are seen as premier products with high cost, this limits access to those who can afford it. The approach adds value to available and local commodities.

Future perspectives

- Dose of prebiotics needs further evaluation
- Prebiotic intervention may be more effective as a long term strategy (integrate into daily routine) rather than as a short term change in diet
- One advantage of prebiotics is that they are present in a range of foods and can also be added to existing foods. Should this be the future rather than extracts and powdered supplements?
- Functional (especially endocrine or hormonal) changes in physiology are important to capture during intervention trials. This will help to interpret microbiome changes.
- When possible, data be stratified for responders and non-responders to provide rationale for more focused follow up studies.

- Still unclear is what is a healthy phenotype. How can we define this?
 - What are we trying to do to the microbiome with these interventions? Knowing that healthy microbiome in some populations will look different to others. Should we be focusing on functional outcomes? Health phenotypes (biomarkers/symptoms etc.)
 - Standardised protocols and SOPs to compare trials are required
 - Variable effects of probiotic and prebiotic mixtures – could this be due to gene-environment interactions?
- Using prebiotics as adjuncts to ongoing therapies is useful to investigate (mitigating side effects, perhaps reducing medical dose)
- What is the role of increasing SCFAs in the gut-liver-brain axis?

Late Breaking News

This session offers participants the ability to give 5-minute presentations on late-breaking news in an informal, interactive atmosphere. The presentations range from 'hot' off-the-bench news to controversial or important issues on the science, politics, funding, business, or humorous aspects of the field of probiotics or prebiotics.

Gastric Microbiome in Functional Dyspepsia. Yasuhiro KOGA, Japan

Oral Nutrition, Microbiome, and Intestinal Barrier Function. Robert JENQ, USA

Protective Effects of Probiotics Against Heavy Metal Toxicity, A Human Trial. Wei CHEN, China

The Role of Probiotics in Human Reproduction. Esther JIMENEZ, Spain

Probiotics for Obesity. Corinne GRANGETTE, France

Potential of Bifidobacterium breve A1 in the Prevention of Cognitive Impairment in Alzheimer's Disease. Jin-zhong XIAO, Japan

Evaluating Presence and Interaction of SCFAs in the Lungs. Marianne KOLIANA, UK

A Prebiotic Intervention Study in Children with Autism Spectrum Disorders. Roberta GRIMALDI, The Channel Islands

Prebiotic Effect of Biosynthetic Inulin. Keiji WAKABAYASHI, Japan

Probiotics in a Regulated But Non-controlled Market of Argentina. Gabriel VINDEROLA, Argentina

The Influence of 2'-Fucosyllactose on Simulated Colon Microbiota and B. infantis Bi-26 Metabolism. Arthur OUWEHAND, Finland

NIZO's Probiotic Optimization Pipeline for the Production and Down-stream Processing of Gut-derived Strict Anaerobes. Martijn BEKKER, The Netherlands

Posters

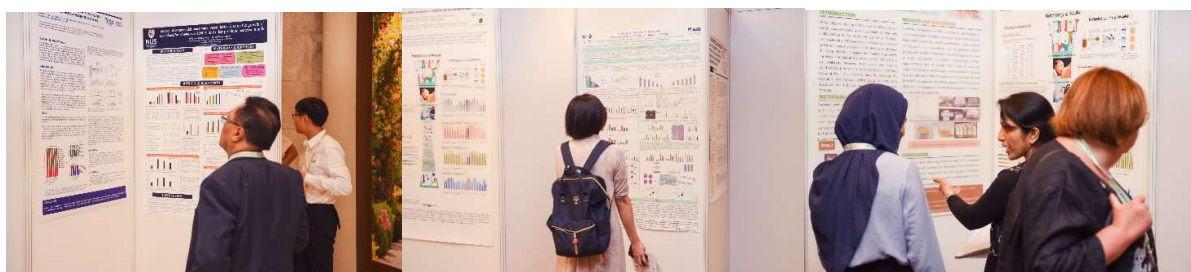
78 authors from the Student & Fellows Association, industry, other students and academics/clinicians from around the world presented posters at the 2018 Annual Meeting in Singapore.

<u>Author</u>	<u>Title</u>
Yasuhiro Koga	Alteration in the Gastric Microbiota and Its Restoration by Probiotics in Patients with Functional Dyspepsia
Chayaporn Wongsiridetchai	Prebiotic Properties of Oligosaccharide Produced from the Spent Coffee Grounds by Mannanase from Bacillus Sp. GA2 (1)
Nieke Westerik	Effects of An Intervention with An Affordable Starter Culture and Training Program for the Local Production of Probiotic Yoghurt in East-Africa
Siriphan Sobanbua	Cloning and Expression of Gene Coding For KAC5 from Lactobacillus Reuteri KUB-AC5 by Food Grade Vector System
Nhung Nguyen	Identification of Antimicrobial Substance Producing Lactic Acid Bacteria Presenting in Human Milk and its Antimicrobial Substance Characters
Mansa Fredua-Agyeman	Strain Specific Inhibition of Clostridium Difficile by Commercial Probiotics in Vitro
Valeria Agamennone	A Practical Guide for the Use of Probiotics in the Prevention of Antibiotic-Associated Diarrhea in the Netherlands
Corinne Grangette	Targeting Gut Microbiota in Obesity: Protective Effects of Selected Probiotic Strains
Feitong Liu	Supplementation with Prebiotic Inulin-Type Fructans on Host Metabolism and Gut Microbiota: The First Randomized Double-Blind Placebo-Controlled Trial in China
Gabriel Vinderola	Occurrence of Lactobacilli with Probiotic Potential in Argentinian Breast Milk
Preeya Dat-arun	Application of Isomaltooligosaccharide from Rice Starch in Diet Formulas for Chronic Kidney Disease's Patient
Takayuki Toshimitsu	Enhancement of the Anti-Inflammatory Activity of Lactobacillus Plantarum Strains by Optimization of Their Culture Condition
Irina Spacova	Intranasal Lactobacillus Rhamnosus GG Ameliorates Airway Hyperreactivity and Allergic Airway Inflammation in Mice
Carlos Gómez Gallego	Milk Microbiota Core During First 8 Months of Lactation in Healthy Mothers from China
Christophe Lay	A Synbiotic Mixture of Scgos/Lcfos and Bifidobacterium Breve M-16V Is Able To Restore the Delayed Colonization by Bifidobacterium in C-Section Delivered Infants
Wei Khine	Compromised Gut Microbiota At Birth

Anna-Ursula Happel	Lessons Learnt from the First Medicines Control Council Approved Probiotics Trial in South Africa
Anna-Ursula Happel	Considering Antibiotic Resistance Profiles of Lactobacillus Strains Isolated from the Female Genital Tract of African Women, Relevant to their Development as Probiotic Strains
Hemraj Dodiya	Antibiotics-perturbed Microbiome and Its Effects in Alzheimer's Disease Pathogenesis: A Potential Future for the Probiotic (Akkermansia Muciniphila) Pre-clinical Studies in This Model
Mariya Petrova	Comparative Genomic and Phenotypic Analysis of the Vaginal Probiotic Lactobacillus Rhamnosus GR-1
Shugui Wang	Bifidogenic Effects of a Unique Synbiotic Mixture (Scgos/Lcfos and Bifidobacterium Breve M-16V) In Healthy Infants
Mansa Fredua-Agyeman	Competition in A Multi-Species Probiotic Liquid Suspension
Lu Wang	The Effect of Non-Ionic Detergent on the Growth of Faecalibacterium PrasuNitziI in Vitro
Ulla Uusitalo	Timing of First Probiotic Exposure During Infancy and the Risk of Celiac Disease in Genetically at Risk Children: TEDDY Study
Ana da Silva Ferreira	Effect of Vitamins B2 and C on the Development of Mucositis
Xuedan Wang	The Effect of Prebiotic Oligofructose Enriched Inulin Supplementation on Microbiota, Protein Metabolism and Gastrointestinal (GI) Symptoms in People Consuming High Protein Diets
Car Reen Kok	In Vitro Enrichment: A Novel Method for Formulating Synergistic Synbiotics
Korawan Chakree	Efficiency of B-Glucan Extract From Auricularia Auricula-Judae And Schizophyllum Commune in Thailand on the Recovery of Cell Lines Treated With Anticancer Drug and Cytotoxicity in Cell Lines
Jinghua Wang	Levothyroxine Improves Throid Dysfunction Closely Related With Gut Microbiota and Its Metabolites
Gaku Harata	Lactobacillus Rhamnosus GG Consumption Characteristically Modulate Gut Microbial Composition of Healthy Japanese Subjects. A Randomized, Double-Blind, Placebo-Controlled Study
Jinghua Wang	The Association between Thyroid Function and Commensal Microbiota
Melinda Coughlan	Resistant Starch Ameliorates Advanced Glycation Endproduct-Induced Albuminuria in A Mouse Model Of Type 2 Diabetes
María Florencia Zacarías	Gut Microbiota in Pregnant Women: Connection with Obese Status and Inflammatory Biomarkers
Hirano Katsuaki	Dietary 1-Kestose Improves the Cecal Microbiota Composition in Association with a Remarkable Increase in the Cecal Butyrate Content in Rats
Shikha Sharma	Genomic Insights Into Host Adaptation Trends of Probiotic Species, Lactobacillus Reuteri: Transforming Probiotic to Super-Probiotic
Mikako Shinohara	The Effects of 1-Kestose on Intestinal Microbiota in Dog
Preecha Patumcharoenpol	Alterations of Gut Microbiota Associated with Distinct Allergic Phenotypes: Big Data from An Asian Longitudinal Birth Cohort Study

Lavanya Vasudevan	Understanding the Cultivable Autochthonous Bacteria from Human Gut
Yi-Wei Juo	Lactic Acid Bacteria Regulates Blood Sugar by Metabolizing Carbohydrates and Regulating the Gene Expression of Intestinal Cells
Yi-Wei Kuo	Characterization of Purine Degrading Lactic Acid Bacteria and Evaluation of the Serum Uric Acid Lowering Effect in Hyperuricemic Rats
Hyunjoon Park	Autoinducer-2 Quorum Signaling in Probiotics: A Mechanism of Gut Microbiome Modulation
Anna-Ursula Happel	Selection of Vaginal Lactobacillus Strains for the Development of a Tailor-Made South African Probiotic for Vaginal Health
Mingzhan Toh	Impact of Commercial Inactivated Yeast Derivatives on the Growth of Lactobacillus Rhamnosus HN001 and Other Probiotic Bacteria in Milk
Charmaine Chew	Gut Microbiota of Healthy Young Thai Children Consuming Synbiotics Supplemented Formula
Yuemei Luo	A Machine Learning Model Basing On Initial Gut Microbiome Data for Predicting Changes Of Bifidobacterium after Prebiotics Consumption
Wannaporn Ueno	Lactic Acid Bacteria Growth Promotion of Xylooligosaccharides Derived From Alkali-Pre-treated and Acid-Debranched Rice Husk
Debora Campos	Assessment of Potential Prebiotic Activity of Pineapple By-Products (Peels and Stems) Extracts and Maintenance of Bioavailability through In Vitro Gastrointestinal Tract System
Victoria Sanborn	The Impact of LGG Probiotic Supplement on Cognition in Middle-Age and Older Adults: Pilot Study
Crystal Johnson	The Human GallBiome, At The Interface of Hepatic Health and Disease
Paul Cherry	An Investigation of the Prebiotic Potential of Irish Seaweeds
Sehad Alarifi	Gum Acacia Enrichment Culture to Extract Probiotic Microorganisms
Conall Strain	Assessment of Prebiotic Potential of Beta-Glucans and Fatty Acids to Promote Diversity of Obese and Diabetic Human Gut Microbiota in Vitro
Min Yang	Effects Of Pea Protein Hydrolysates On The Growth Of Probiotics
Frances Jackson	In Vitro Assessment of the Effects of Human Milk Oligosaccharides on the Microbiota in Irritable Bowel Syndrome
Chenhong Zhang	Predominant Gut Lactobacillus .Mmurinus Strain Mediates the Anti-inflammatory Effects in Calorie Restricted Mice
Preeya Dat-arun	Application of Isomaltooligosaccharide from Rice Starch in Diet Formulas for Chronic Kidney Disease's Patient
Chyn Boon Wong	Role of Human-Residential Bifidobacteria in the Degradation of Food-Derived Opioid Peptides
Yanping Wang	Probiotic Properties and Cellular Antioxidant Activity of Lactobacillus plantarum MA2 Isolated from Tibetan Kefir Grains
Carlos Gómez Gallego	Effect of Domestication on the Intestinal Microbiome of Asturcon Horses
Xin Yang	Gut Microbiota Mediates Islet Cell Injury Induced by Low-dose DSS

Yue Xiao	Identification of Key Proteins and Pathways in Cadmium Tolerance of Lactobacillus Plantarum Strains by Proteomic Analysis
Lin Wang	Effects of fructo-oligosaccharides on the intestinal micro-ecology of constipation induced by loperamide in BALB/c mice
Marianne Koliانا	Preliminary Study Evaluating Presence and Interaction of Scfas in the Lungs
Alexandru Circ	Traditional Sour Cabbage – An Ancient Probiotic Food from Wallachian Plain
Alexandru Moisac	Technology for a Beverage Fermentated with Local Romanian Sugary Kefir Strains Using Honey as a Fermentation Substrate
Qian Chen	Safety Assessment of Lactobacillus Crispatus JDM502 Based on Whole Genome Sequencing
Yang Han	The Present of Prenatal Bacterial Microbiome in Uterine Cavity
Wei Chen	Lactobacillus Plantarum ZS2058 Produces Conjugated Linoleic Acid to Ameliorate Colitis
Lin wang	Effects of Fructo-Oligosaccharides on the Intestinal Micro-Ecology of Constipation Induced By Loperamide in BALB/C Mice
Ji Soep Shin	Bioconversion of Ginsenoside Rb1 to Rd using β -Glucosidase from Leuconostoc Mesenteroides EFEL 15
Da Min Park	Isolation of Immunomodulatory Probiotic Strain to be used in Kimchi
Naho Ikari	Double-Stranded RNA Derived from Lactic Acid Bacteria Augments Th1 Immunity via Interferon- γ From Human Dendritic Cells
Bo Bo	Polyphasic Microbial Analysis of Laphet, Myanmar Fermented Tea Leaves
WenWei Lu	A High-Throughput Sequencing Method to Assess the Structure and Composition of Gut Bifidobacterium
Wei Chen	The Protective Effects of Probiotic against Heavy Metal Toxicity
Nam Soo Han	Total Polyphenol, Total Flavonoid Contents, and Antioxidant Activity of Laphet, Myanmar Fermented Tea Leaves
Qixiao Zhai	A Mixture of Lactobacillus Species Isolated from Traditional Fermented Foods Promote Recovery from Antibiotic-Induced Intestinal Disruption in Mice
Sarmauli Manurung	Milk Fat Globule Membrane Alone and in Combination with a Prebiotic Blend Moderates the Impact of Maternal Separation on Behavior and Gut Microbiota



Students & Fellows Association



The SFA's goal is to create an interactive network of graduate students and postdoctoral fellows across the globe working on probiotics, prebiotics, or related fields. They succeeded in this mission in Singapore this year by assembling a group of 18 students from around the world. Students and fellows each shared the focus of their research in rapid, 3-minute talks. In addition, the students and fellows presented their research with posters during the main ISAPP meeting. This year networking and opportunities for knowledge exchange with the main meeting participants was enhanced, and SFA was included in all activities except the discussion groups. Poster abstracts and the conference summary are available [here](#).

Appendix A: 2018 ISAPP Meeting Program

Furama Riverfront Hotel, Singapore

Singapore, June 5-7th, 2018

Tuesday, June 5, 2018

8:30 AM	Welcome Address: Conference Chairs: Gregor REID, Canada and Yuan-Kun LEE, Singapore Welcome Speech: ISAPP President: Karen SCOTT, United Kingdom
8:45-9:15 AM	The Targets for Prebiotic Therapy: Glenn GIBSON, UK
9:15-9:45 AM	Using Probiotics and Prebiotics in Pediatric Medicine: Michael CABANA, USA
9:45-10:15 AM	Intestinal Microbiology in Early Life: Rocio MARTIN, Singapore
10:15-10:45AM	BREAK and POSTERS (Venus Ballroom Foyer)
10:45-11:15AM	Dietary Oat Bran and Probiotic Interaction in Polyunsaturated Fatty Acid and Oxylipin Metabolism: Jetty Chung-Yung LEE, Hong Kong
11:15-11:45AM	Human and Dietary Migration, Gut Microbiome, Health & Diseases: An Asian Perspective: Yuan-Kun LEE, Singapore
11:45-12:15PM	Probiotics-Food Oral Immunotherapy for the Treatment of Peanut Allergy: Mimi TANG, Australia
12:15-1:45 PM	LUNCH and POSTERS (Venus Ballroom Foyer)
1:45-2:15 PM	Formulating Synbiotics for Improved Human Health: Robert HUTKINS, USA
2:15-2:45 PM	Impact of Diet on The Activity of the Gut Microbiota – Key Life-stages: Karen SCOTT, UK
2:45-3:15 PM	Nomenclature Upheaval of the Genus <i>Lactobacillus</i> : Implications for the Probiotic Field: Bruno POT, Belgium
3:15-3:45 PM	BREAK (Venus Ballroom Foyer)
3:45-4:00 PM	Guides for Use of Probiotics in the Clinic – Some Recent ISAPP Initiatives: Dan MERENSTEIN, USA

4:00-5:00 PM	Panel Discussion: Harmonizing Global Regulatory Approaches for Products Targeting the Microbiome Panelists: Seppo SALMINEN, Finland, Yuan Kun LEE, Singapore, Gabriel VINDEROLA, Argentina and Mary Ellen SANDERS, USA
5:00-6:00 PM	Late Breaking News: Rapid-fire, 5 min talks on issues of latest importance
6:00-8:00 PM	Posters and Reception (Venus Ballroom Foyer)

Wednesday, June 6, 2018

9:00-9:30 AM	The Products of Probiotic Bacteria with Potential for Improving Human Health: Colin HILL, Ireland
9:30-10:00 AM	Probiotics for Liver Disease: Hani El-NEZAMI, Hong Kong
10:00-10:30AM	If You Could Design A Probiotic, What Would It Look Like?: Sarah LEBEER, Belgium
10:30-11:00AM	BREAK (Venus Ballroom Foyer)
11:00-11:30AM	Fructophilic Lactic Acid Bacteria for Honey Bee Health: Akihito ENDO, Japan
11:30-noon	Detoxification of Environmental Chemicals With Probiotics: Gregor REID, Canada
Noon-12:30PM	Pre- and Probiotic Use in Chronic GI Disorders in the Asia-Pacific Region: Ruben WONG, Singapore
12:30-1:30PM	LUNCH (Venus Ballroom Foyer)
1:30-2:00 PM	Probiotics and Prebiotics for Oral Health: Wim TEUGHELDS, Belgium
2:00-2:30 PM	Indigenous Plants as Prebiotic Sources in Asia: Shahrul Razid SARBINI, Malaysia
3:00-3:30 PM	<i>Akkermansia muciniphila</i> as Potential Next-Generation Beneficial Microbe: Fake of Reality?: Patrice CANI, Belgium
3:30-4:00 PM	Probiotics for Preterm Infants - The Western Australian Experience: Sanjay PATOLE, Australia

4:00-5:00 PM **Panel Discussion:**
 What Does the Future Hold for Probiotics and Prebiotics? Perspectives from Students, A Clinician and Industry.
 Panelists: Hemraj DODIYA, President, SFA, USA, Yasuhiro KOGA, President of Japan Probiotics Society, Japan, Raja DHIR, USA and Michael CABANA, USA

5:00-5:15 PM **Closing remarks**
 Speaker: Dr Karen SCOTT, United Kingdom and Prof Yuan-Kun LEE, Singapore

Thursday, June 7, 2018

8:30AM-2:00 PM Discussion Groups

2:30-3:45 PM Discussion Group Summaries

Appendix B: Acknowledgements

Thank You to the 2018 ISAPP Meeting Sponsors

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Industry Members

