

# ScienceInSight

News and Updates on Nutrition, Food Safety and Health

CELEBRATING

25

YEARS

1993 – 2018



## Diabetes

*Current Science and Multi-Stakeholder Approaches to Prevention and Management*

## Healthy Aging

*Role of Nutrition*

## Prebiotics & Probiotics

*Promoting Gut Microbiota and Health*

## Nutrition, Food Safety and Regulatory Issues

*Meeting Scientific Challenges*

ILSI SEA Region  
**Celebrates 25 Years of  
Science and Partnerships  
to Improve Public Health**



## FROM THE EXECUTIVE DIRECTOR

2018 marks an important milestone for ILSI SEA Region, as we celebrate our 25th Anniversary. Over the past 2 and a half decades, we have expanded our work in improving nutrition and food safety in the region by focusing on science and working collaboratively with multiple stakeholders. This was no exception in the later half of 2017 and as we entered 2018.

Globally, and particularly in Asia, we are seeing a sharp rise in the incidence of diabetes and this will have a significant impact on the health care systems of many countries. In October 2017, ILSI SEA Region together with the Singapore Health Promotion Board and the Clinical Nutrition Research Centre organized a regional conference in Singapore to explore approaches and strategies for preventing and managing the disease. Speakers, who included international and regional experts, agreed that a multi-stakeholder approach involving government, private industry and academic institutes is needed to jointly address the diabetes epidemic.

A key achievement in 2017 was the establishment of the ILSI SEA Region Vietnam Country Committee, which organized its first scientific seminar in October focusing on

important nutrition, food safety and regulatory challenges faced in the country. In Myanmar, we organized a Food and Nutrition Labeling and Claims Workshop with the Myanmar Food and Drug Administration. The meeting provided a scientific platform to increase knowledge and develop capacity among officials from various food and nutrition agencies in the country.

We also conducted and participated in activities addressing other public health topics, including the role of prebiotics and probiotics in promoting gut microbiota and health, as well as the harnessing of new agriculture and processing technologies for an affordable and sustainable food supply.

I hope you enjoy reading about these and more of our activities in this issue of *Science InSight*, and I look forward to your active participation in our upcoming events!

**Boon Yee Yeong**

Executive Director, ILSI SEA Region

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# ILSI SEA Region Celebrates 25 Years of Science and Partnerships to Improve Public Health



Since it was established in 1993, ILSI SEA Region has led the way in convening renowned scientific experts from the public and private sectors, collaborating in a neutral forum to address existing and emerging issues of public health significance in the region. Over the years, ILSI SEA Region has focused on nutrition and health promotion; food and water safety; risk science and toxicology; and sustainable agriculture and nutrition security.

In 2018, ILSI SEA Region celebrates its 25th anniversary. Marking this important milestone, the 2018 ILSI SEA Region Annual Meeting, being held in Singapore on April 23-25, will acknowledge the invaluable contributions made by ILSI SEA Region's extensive network of academic, government, civil society, and industry partners from around the region over the past 25 years.

In conjunction with the Annual Meeting, a scientific symposium titled '**Transformation Technologies and Translational Research: A New Era in Advancing Sustainable Food System and Public Health Solutions**', held on April 23rd, 2018, will highlight new technology used in agriculture and the food supply chain, environmental science and biomedical research; and explore the use of bioinformatics and other innovative digital technologies to capture and analyze data in food systems and public health research.

Moving forward, ILSI SEA Region continues to strengthen its scientific capability, expand its scientific network, and remain responsive to opportunities and challenges, in order to benefit key stakeholders and the wider community.

# ILSI Annual Meeting 2018: A Report from Bermuda

The International Life Sciences Institute celebrated its 40th Anniversary during the ILSI Annual Meeting 2018, held in Southampton, Bermuda from January 20 - 23. This yearly gathering provides a platform for Members, Trustees, Directors, Scientific Advisors and Staff from all ILSI branches and entities to meet, exchange updates and foster partnerships. ILSI SEA Region joined the Annual Meeting, with a team comprising Mr. Geoffry Smith, President; Mrs. Boon Yee Yeong, Executive Director; Ms. Pauline Chan, Director of Scientific Programs; and Ms. Yee Sin See, Assistant Manager, Scientific Programs.



ILSI Asian branches, some ILSI Europe staff and guests

## Scientific Sessions

The Scientific Sessions, organized by ILSI North America, covered a diverse range of food safety and nutrition topics. Presentations by scientific experts from leading academic research institutions, government agencies, and industry organizations allowed for the productive exchange of knowledge and open discussion on critical issues.

During ILSI North America's Assembly of Members, Dr. Paul Elliott, Imperial College, UK, explored new insights into disease etiology and pathogenesis that can inform both lifestyle and preventative strategies in his keynote presentation **The Exposome: Challenges and Opportunities in the Study of Non-Communicable Diseases**. Dr. Richard Williams, George Mason University, USA, focused on how developments in nutrition and science are impacting government and the private sector as well as driving personalization, in the second keynote address, **It's Coming, Ready or Not: Algorithms and Benefit-Cost Analysis**.

ILSI North America also organized a session on **Advances in Health-Based Decision Making**, examining the value of health-based assessments in decision-making in comparison with endpoint or hazard-based determinations. The session also addressed advances in evidence-based risk assessment in toxicology and nutrition and weighed the accommodation of uncertainty in decisions pertinent to safety and health. The following session, **New Advances: Diet and Microbiome**, examined the latest science on diet and the gut microbiome, including advances on application and intervention

for appetite and eating behavior as well as new research on the infant and fetal microbiome.

The afternoon session on **Threats to the Global Food Supply** looked at emerging global threats to the food chain and system including impact on supply, process, security, agricultural practices, food safety and human health. New technologies and approaches to predict and manage threats were also discussed. During the **Carbohydrates Forum 2018** in the evening session, Dr. Gary Wu, University of Pennsylvania, USA, discussed how dietary fiber affects the various components of the gut microbiota in his presentation **A Research Paradigm for Determining the Role of Fiber in Gut Barrier Health**.

A special session titled **Science Serving Society** was organized to highlight specific programs that clearly demonstrate ILSI's significant contributions to the theme, with an emphasis on multi-year, multi-partner programs with demonstrable impact. A further session, **The Intersection Between Food Sustainability and Health**, examined current practices, challenges and research gaps in this area. A food systems approach to environmental sustainability of food production was discussed, as well as the health and environmental impacts of different diets.

Lastly, the scientific session on **Water II - Water Management for the Future** discussed new and emerging technologies related to water management (including regeneration, conservation, and efficiency improvement) and the impact of

these approaches on short and long-term water management and human practice. This session also focused on emerging technologies and innovations in water management in agricultural systems, particularly in areas and regions affected by climate change. A case example was included from Bermuda, where water conservation and management have been a necessity and long-practiced goal.

*Presentations made by speakers at the Scientific Sessions can be found on [www.ilsil.org](http://www.ilsil.org) or through the ILSI Global YouTube Account at <https://www.youtube.com/user/ILSIGlobal>*

### Fostering Closer Collaboration among ILSI's Asian Branches

ILSI SEA Region reprised its role in coordinating and fostering collaboration among ILSI's Asian branches. The ILSI Asian Branches Meeting consisted of ILSI Focal Point in China, ILSI Japan, ILSI Korea, ILSI SEA Region and ILSI Taiwan. ILSI India was unable to join the meeting but provided their input beforehand. One of the key objectives of this meeting is for the Asian branches to explore and discuss areas of common interest and collaboration. At this year's meeting, each of the ILSI Asian branches provided a brief update of their respective activities and outcomes achieved in 2017. Inter-branch collaborative meetings were also reviewed, including the **9<sup>th</sup> BeSeTo Meeting on Food Safety** held in Japan, as well as the ongoing **ILSI Asian Branches Collaboration Project: Review of Nutrition Labeling and Nutrition and Health Claims in Asia**.

The Asian Branches also discussed upcoming and proposed collaborations such as the **10<sup>th</sup> BeSeTo Meeting** that will be held in Taiwan later in 2018. Some of the Asian Branches will continue to collaborate on the **One ILSI Project on Nutrition, Health and Wellbeing: Multi-Country Survey: Profiling the Elderly and Review on Healthy Aging**. In addition, the Asian Branches shared updates on issues relevant to public health in Asia which include non-communicable diseases, food and nutrition security, food safety, sustainable agriculture and technologies, and the gut microbiome.

### Malaspina International Scholar Travel Award

Named after the founder and first President of ILSI, Dr. Alex Malaspina, ILSI established the **Malaspina International Scholar Travel Award** to enable academic researchers who are at an early stage in their careers to participate in scientific discussions during the ILSI Annual Meeting. Candidates from the various regions in which ILSI has a presence have been selected to receive the Malaspina International Scholar Travel Award. ILSI SEA Region is proud to announce that **Dr. Lay Ching Chai, University of Malaya, Malaysia**, nominated by ILSI SEA Region, was awarded the Malaspina International Scholar Travel Award for 2018.



Dr. Lay Ching Chai (centre), University of Malaya, Malaysia with ILSI SEA Region (L-R), Ms. Yee Sin See, Ms. Pauline Chan, Mr. Geoffrey Smith, and Mrs. Boon Yee Yeong

### Some Words from our Award Recipient:

"I am honored to receive ILSI's 2018 Malaspina International Scholar Travel Grant Award and to attend the ILSI Annual Meeting in Southampton, Bermuda. It's such an invaluable experience for me to be part of this unique conference that brings academia, industry and government officials together to discuss how to make science relevant and great. I gained not just in knowledge, but also in my network and friendship through the meeting.

The ILSI committee assigned each of the Malaspina awardees to a mentor, who are senior members of ILSI, and I was excited to meet my mentor, Mr. Ary Bucione, the President of ILSI Brazil, and Director of Dupont Nutrition & Health Brazil. We talked about the direction and challenges of food industry in developing countries and I gained new insights from his industry point of view.

The theme of the meeting this year was **Science Serving Society**, and one of the main discussion topics in this meeting was on how ILSI could evolve as the world is evolving so that it can stay relevant. I think it is also a great challenge that scientists are facing nowadays on how to make our science relevant to the rapidly changing world. Just like Ms. Andrea E. Stumpf, a lawyer who has been collaborating with the World Bank for many years, quoted in her address during the ILSI Assembly of Members '**the only constant in life is change**'. As a scientist, we should always ask ourselves if the science we do is still relevant to society and to this constantly changing world.

I presented part of my research on foodborne and waterborne pathogens during the annual meeting poster session. The poster topic, "**Connecting the dots: antibiotic resistance from farm to table**," included some of the interesting findings from an ongoing study that aims to elucidate the impact of agricultural and clinical activities to the emergence of antibiotic resistance in human pathogens.

I would like to take this opportunity to thank Mr. Geoffrey Smith, Mrs. Boon Yee Yeong, Ms. Pauline Chan, and Ms. Yee Sin See from ILSI SEA Region, Mr. Keng Ngee Teoh, formerly of ILSI SEA Region, who has now joined Ajinomoto Japan, and Prof. Sushila Chang, Deputy Vice Chancellor (Academic), Cardiff Metropolitan University, UK, fellow and board member of ILSI, for their nomination, support, and trust."

# Diabetes: Current Science and Multi-Stakeholder Approaches to Prevention and Management



**In 2015, the Asia Pacific region alone accounted for 36.9% of the total number of diabetics in the world. This global rise in the prevalence of diabetes will have a significant impact on health care systems and increase the economic burden of health care in many countries. Prevention and early detection of diabetes are crucial to delay the disease's progression and its detrimental health effects.**

As such, ILSI SEA Region and the Clinical Nutrition Research Centre (CNRC), A\*STAR/NUHS, Singapore, organized a symposium in collaboration with the Health Promotion Board (HPB), Singapore, aiming to review the prevalence, status and latest science on type 2 diabetes mellitus (T2DM), explore prevention and management of diabetes through various individual and community strategies as well as discuss innovation, and multi-stakeholder approaches in the prevention and management of diabetes.

The symposium, held in Singapore on October 4-5, 2017, began with a keynote address from Mr. Yoong Kang Zee, Chief Executive Officer, HPB. It is now known that 1 in 3 people in Singapore is at risk of developing diabetes in their lifetime. Mr. Zee, during his address titled **Singapore's War on Diabetes**, shared the national strategic framework which included prevention, screening and managing diabetes. HPB has been working with food and beverage industries to increase healthier options and has instituted an ecosystems approach to increase physical activity through public programs.

Health screenings are more affordable now and primary care capacity and programs for diabetes care have been scaled-up. His concluding statement emphasized that Singapore is shifting the focus away from a hospital-centric model of care to a broader focus of public health, prevention and screening, and primary care.

In the opening plenary, Prof. James Best, Nanyang Technological University, Singapore, shared **Lessons Learnt for Diabetes Prevention Programs: Replicating Principles from Successful Case Studies**, presenting three smaller-scale diabetes prevention studies from Finland, USA and China. These studies saw a reduction in diabetes prevalence among the subjects, however scaling up these prevention programs proved to be challenging due to limited resources. Hence, there are discussions to individualize and tailor national programs, focusing on using available resources for prevention and improving environmental factors.

Dr. John Agwunobi, U.S. Department of Health & Human Services, then gave a presentation on

**The Evolution of Diabetes Policy in the USA and Beyond: Science to Multi-Stakeholder Approaches.** He elaborated on national diabetes policy in the USA, where programs now consider dietary and lifestyle changes and metabolic and behavioral adaptations. He called for support for further scientific research on diabetes, creating science-based policies based on this research, and adopting a multi-stakeholder approach. Dr. Ben van Ommen, The Netherlands Organization for Applied Scientific Research, described **System Approaches to Prevention, Management and Cure for TD2M.** He explained that from a molecular physiology or systems biology viewpoint, a key component in T2DM is “systems flexibility”, and a loss in flexibility, such as insulin sensitivity, triggers malfunctioning and pathologies. Knowing the mechanisms involved at the molecular level allows the application of personalized dietary aspects to generic treatments.

### Diabetes and Population Risk

Session 1 commenced with the **Drivers of Diabetes in Asia**, presented by Prof. E Shyong Tai, National University Hospital, Singapore. Prof. Tai elaborated on three key factors - socio-economic development, increased caloric intake due to lifestyle and environmental changes, and the fact that Asians have a particular propensity to develop diabetes in the context of this modern lifestyle. Prof. Yuan Kun Lee, National University of Singapore (NUS), then raised the important question **Could Asian Diet and Gut Microbiome have an Impact on Diabetes?** His studies found that consumption of resistant starch decreases the volume of fatty acids which increased the diversity of species inhabiting the gut and reduced the rate of chronic inflammation. However, Prof. Lee added that a balanced dietary intake is important as there are questions as to whether promoting a high carbohydrate diet can lead to obesity and other metabolic disorders.

A/Prof. Mary Chong, NUS, presented her findings on **Gestational Diabetes Mellitus (GDM) in a Multi-Ethnic Asian Cohort: Prevalence and Prediction of Glucose Intolerance at Postpartum.** Data from the Growing Up in Singapore Towards Healthy Outcomes (GUSTO) study showed that lifestyle factors including a high-GI diet and poor sleep quality are associated with higher fasting blood glucose levels and increased risk of GDM. Increased physical activity, breastfeeding, and routine check-ups may lower the risk of progression of GDM to diabetes. **The Ethnic Differences in Glycation and HbA1c-Glycemia Relationship: Impacts on Research, Diagnostic Cut-offs and Treatment** was delivered by Prof. Melvin Leow, CNRC, who presented local data suggesting that for any level of fasting plasma glucose, Chinese and Malays have higher HbA1c compared with Indians. This implies optimum cut-offs of HbA1c should vary by ethnic

group. He stressed that it is critical to consider the risk of hypoglycemia in Malays and Indians when aiming at the HbA1c cut-off, as the fasting plasma glucose for them is lower than for Chinese.

### Diabetes: Prevention Strategies and Success Stories from the Region

Physical activity was emphasized by Prof. Andrew Hills in his presentation on **Novel Approaches in the Promotion of Physical Activity and Exercise for Prevention of Type 2 Diabetes.** He outlined several approaches to increase time spent in physical activity, including using public park spaces as a platform to promote healthy living.

Bringing the focus back to Singapore, Dr. Shyamala Thilagaratnam, HPB, spoke on **Diabetes Prevention in the Community: The Singapore Story.** Recognizing that the community is where people come together after returning from work or school, HPB has leveraged social networks to build healthy habits early and reduce risk of diabetes in later life. Public engagement was increased through roadshows and interest groups and through diabetes prevention workshops.

A **Community-based Diabetes Prevention Program in Thailand** was shared by A/Prof. Valla Tantayotai, Walailak University, Thailand. Her study concluded that successful implementation of intervention programs requires a collective effort of multidisciplinary health care professionals, well-trained facilitators, and context-relevant activities organized for at-risk groups.

Lastly, from a slightly different perspective, Dr. M. Balasubramanyam, Madras Diabetic Research Foundation, talked about the **Molecular Endorsements of Lifestyle Modification Benefits towards Diabetes Prevention and Management.** On a molecular basis, Dr. Balasubramanyam suggested using biomarkers to personalize lifestyle recommendations for pre-diabetic and diabetic patients. He introduced the Diabetes Prevention Program (DPP) study, where diabetic incidence was predicted and metabolomic signatures were used to explain lifestyle intervention benefits.

### Diabetes Prevention and Management Through Lifestyle Intervention and Innovation

A case example of lifestyle intervention was given by Prof. Winnie Chee, International



Mr. Yoong Kang Zee, HPB Singapore

Medical University, Malaysia, in her presentation **Transcultural Diabetes Nutrition Algorithm (tDNA) as a Lifestyle Intervention for Diabetes Weight Management: The Malaysian Application.**

The intervention consisted of meal planning and increased physical activity according to an algorithm based on initial body weight, A1C, exercise capacity and cardiovascular risk factors, and included patient counselling. The study has shown that structured lifestyle intervention through a culturally-adapted nutrition algorithm significantly improved diabetes control, body weight and blood pressure in primary care settings.

Next, Prof. Tong Wei Yew, NUS, spoke on the **'Year of Care' (YoC) Program: Engaging People Living with Diabetes by Transforming Routine Clinic Visits into Collaborative Care and Support Planning Consultations.** This program transforms routine clinic visits into patient-centered collaborative care and support planning consultations by incorporating various strategies to improve patient engagement and support for self-management. Prof. Tai concluded that care planning will link better with specialist care and community support and could provide the framework for whole system population approach.

Prof. Jeyakumar Henry, CNRC, shared **Food-based Interventions for the Management of Diabetes: Opportunities and Challenges.** Using experimental and clinical intervention studies, he highlighted how carbohydrate-rich foods can be manipulated using both technology and food ingredients to minimize glucose response in the human body, such as by developing low glycemic index foods.

Remaining on the topic of carbohydrates, A/Prof. Grant Brinkworth, CSIRO, Australia, presented his research findings on **The Role of a Very Low Carbohydrate Diet for Type 2 Diabetes Management: A Long-term Randomised Trial.** Low-carbohydrate diets, particularly those low in saturated fat and high in unsaturated fat, showed metabolic health benefits of weight loss by promoting greater improvements in the blood lipid profile and reductions in blood glucose variability and diabetes medication requirements, with no adverse effects on mood state, cognitive

performance or renal function. These diets were shown to have the greatest therapeutic benefits for individuals with pre-diabetes or diabetes.

Dr. Nese Sreenivasulu, International Rice Research Institute, Philippines, then spoke about the **Genetic Basis of Low Glycaemic Index Rice: Its Potential Application in Diabetes Prevention and Management.** His research evaluated the feasibility of using invitro cooked grain amylolysis, starch mobilization patterns during seed germination, and variation in starch structure and composition in the mature seed to differentiate patterns of starch digestibility. These new insights can guide rice breeding programs to produce lower GI rice with acceptable cooking quality to help in the management of diabetes.

### Diabetes Management: Trends, Innovations and New Technologies

Mr. Kelvin Tan, NUS Enterprise, talked about using **Artificial Intelligence (AI) and Cognitive Technologies to Aid Diabetes Management.** He shared two examples from NUS Smart Systems Institute, namely Food(Ig), a food journal with nutrition tracking and analysis app on diet using digital food images, and Taste+, a technology that uses weak and controlled electrical pulses on the tip of the tongue to overlay virtual taste sensations on food and beverages, enabling people to experience digitally-augmented taste sensations while eating and drinking.

Dr. Teng Yan Yau, Holmusk, Singapore, explored **Mobile Technology in Diabetes Care: The Landscape Today,** introducing the benefits, caveats, and potential for mobile technology in improving the lives of people living with diabetes. He introduced GlycoLeap, a local digital program consisting of a mobile app with expert health coaching by a qualified dietitian which can help participants make sustainable changes in their health behaviors.

### Multi-Stakeholder Partnership in the Prevention and Management of Diabetes

During this panel discussion, chaired by Dr. Yong Mong Bee, SingHealth Duke-NUS Diabetes Centre, Singapore, panellists shared the challenges that stakeholders faced in the prevention and management of diabetes, as well as their views on whether a reduction in prevalence of obesity would alleviate the incidence of diabetes. They agreed that it was important to integrate community programs into mass media, schools, and the workplace to create a viral impact. Speakers and panellists agreed that a multi-stakeholder approach is essential in managing the diabetes epidemic, and this involves government, private industry, and scientific and academic institutes working together.

Break-out session to discuss topics relevant to the panel discussion.



# The Role of Nutrition in Healthy Aging



Asia recorded 549 million people aged 60 years or over in 2017, home to 57% of the global older population and projected to rise to 61% in 2050 according to the United Nations Population Division. In Singapore alone, the resident population has grown older, with the proportion of residents aged 65 years and over increasing from 8.5% in 2007 to 13.0% in 2017. A better understanding of the changing relationship between health and aging, particularly the role of nutrition in improving quality of life, is crucial to prepare for the inevitable phenomenon of an aging population in Southeast Asia. As such, ILSI SEA Region held a **Mini-Symposium on The Role of Nutrition in Healthy Aging** in Singapore on November 7, 2017, to understand nutritional needs in aging, impact of nutrition on muscle health, and health indicators for the elderly in the region.

Dr. Sofia Amarra, Director, Research (Nutrition) at ILSI SEA Region opened the symposium with a **comparison of indicators for aging and health in South East Asia**. The One ILSI Global Project on Healthy Aging is a multi-branch research collaboration whose goal is to identify mid-life factors that contribute to healthy vs. pathological aging in Southeast Asia, determining which underlying factors account for similarities and differences between populations, and propose country- and region-specific best practices, policies, and programs to promote healthy and successful aging. Dr. Amarra presented a comparison of data from 10 Southeast Asian countries with respect to indicators describing the health status of the adult population; and disease-related causes of premature mortality, causes of disability, and risk factors for disease

and disability among adults. This comparison demonstrated that Southeast Asian countries show wide variation in population health status, despite common causes of mortality, disability, and risk factors for disease and disability.

The **development of nutrient standards and dietary guidelines for the elderly in the Philippines** was shared by Mr. Carl Vincent Cabanilla, Food and Nutrition Research Institute of the Department of Science and Technology (FNRI-DOST), Philippines. Nutrient-based dietary standards and food-based dietary guidelines are two key dietary standards necessary for policymaking. Nutrient standards describe and estimate human requirements for essential nutrients. Dietary guidelines are evidence-

based, country-specific recommendations for food patterns that promote good health while helping to reduce risk of chronic diseases. FNRI-DOST released the Nutritional Guidelines for Filipinos (NGF) in 2012 and the Philippine Dietary Reference Intakes (PDRIs) in 2015, for the general population. Mr. Cabanilla focused on nutrient standards and dietary guidelines for Filipino older persons, particularly on protein requirements and recommended dietary protein intake. Similar to current WHO/FAO recommendations, the 2015 PDRIs' reference protein intakes, including an Estimated Average Requirement, a Recommended Nutrient Intake, and an Acceptable Macronutrient Distribution Range expressed as percentage of daily energy intake, are based on available studies that estimate the minimum protein intake necessary to maintain nitrogen balance, with due consideration of the protein quality of rice-based diets. The 2012 NGF contains 10 nutrition messages, one of which pertains directly to intake of protein-rich foods. Message 4 urges the public to "Consume fish, lean, meat, poultry, egg, dried beans or nuts daily for growth and repair of body tissues." Special nutritional needs for older persons were also identified.

Dr. Dieu Huynh, Abbott Nutrition R&D Center Asia Pacific, discussed the **role of nutrition in promoting muscle health for healthy aging**. Muscle health plays an important role in strength, functional capacity, and ability to live a healthier and more active life with age. After the age of 40, muscle mass decreases by approximately 8% per decade, with the rate of loss almost doubling per decade after 70 years of age. This age-related loss in muscle mass and strength, known as sarcopenia, leads to reduced functional capacity and increased risk of developing chronic metabolic diseases.

Several nutritional factors such as protein, vitamin D and beta-Hydroxy beta-Methylbutyrate (HMB), a metabolite of the amino acid leucine, have been extensively studied regarding their impact on muscle synthesis and metabolism in the aging population. Older adults who have adequate dietary protein intake or received protein supplementation have been shown to have improved muscle mass,



decreased rate of muscle loss, and improved physical performance. Vitamin D deficiency is associated with decreased muscle strength in older men and women in epidemiological studies. Findings from intervention trials have shown that vitamin D supplementation improves lower limb strength and reduces risk of falling. Plasma HMB concentrations were positively correlated with appendicular lean mass and muscle strength in older adults, however, endogenous HMB concentrations decline with age. Evidence suggests that HMB supplementation may help slow muscle loss and improve measures of muscle strength in older adults. In addition to good nutrition, regular exercise and resistance training has been proven as an effective way to increase muscle mass and strength in older people.

The effect of **dietary protein intake on body composition changes after weight loss in older adults** was presented by Prof. Jung Eun Kim, NUS. Middle-aged and older adults experience age-related changes in body composition, including increased body mass and fat mass and decreased lean mass, which includes skeletal muscle. Loss of skeletal muscle mass, or sarcopenia, is associated with impaired mobility, increased risk of morbidity, and reduced quality of life in this population. Nutrition is one of the potential determinants of the quality of body composition changes and higher total dietary protein intakes are reported to preserve lean mass and improve body composition. Data from a double-blind, placebo-controlled, community-based 36-week intervention revealed that higher total protein intakes promoted positive change in exercise training-induced body composition by losing fat mass and increasing percentage lean mass during weight maintenance. In addition, a recent systematic review and meta-analysis suggest that older adults retained more lean mass and lost more fat mass during energy restriction-induced weight loss when consuming higher protein diets. Collectively, higher dietary protein intakes may be a beneficial dietary strategy to improve age-related body composition changes.



# Prebiotics and Probiotics: Role in Promoting Gut Microbiota and Health



Speakers, chairpersons and organizers of the seminar

**Gut microbiota refers to the microbe population living in our intestine, made up of trillions of microorganisms including at least 1000 different known species. A healthy and balanced gut microbiota is key to ensuring proper digestive functioning and plays an important role in stimulating the immune system. A disturbance in this balance, caused by infectious diseases, certain diets, or the prolonged use of antibiotics, can result in greater susceptibility to health problems such as irritable bowel syndrome, inflammatory bowel disease, food allergies and food sensitivities.**

Many studies have demonstrated the beneficial effects of prebiotics and probiotics on gut microbiota. Prebiotics are certain dietary fibres that serve as “food” for beneficial bacteria to help promote their growth and activity, thereby improving the functioning of microbiota. Probiotics, present in some fermented products, contain beneficial live microbes that may help gut microbiota keep its balance, integrity and diversity.

ILSI SEA Region’s Malaysia Country Committee organised a one-day seminar on November 22, 2017 that presented an up-to-date overview of the research on potential health benefits of prebiotics and probiotics in promoting balanced gut microbiota for the maintenance of human health; provided an in-depth understanding of the regulatory requirements for the use of prebiotics and probiotics in food in Malaysia; reviewed the status of research and development on prebiotics and probiotics and identified gaps in knowledge; and discussed the use of prebiotics and probiotics in various medical conditions. Co-organized by the Nutrition Society of Malaysia, there were 7 presentations by local and international invited speakers.

Prof. Patricia Conway, University of NSW, Australia, opened the seminar with a comprehensive overview of the **role of gut microbiota in human health**. At birth, the digestive tract is relatively sterile and is then successively colonised with microbes acquired from the mother, the hospital environment, siblings, pets and the home environment. The composition

of the microbiota is influenced by these early life exposures as well as the mode of delivery, diet and medications, and has been linked to childhood diseases including digestive, respiratory and allergic conditions in children. By two years of age, the gut microbiota is relatively complex and diverse, containing both potentially harmful and beneficial bacterial strains. Lifestyle choices during adulthood including diet, exercise, medications, alcohol and various stresses impact on the composition or function of the gut microbiota and can lead to a disturbance of the gut microbiota, referred to as ‘gut dysbiosis’ and associated with many diseases.

The **role of prebiotics in promoting gut microbiota and health** was then presented by Dr. Anadi Nitithamyong, Institute of Nutrition Mahidol University, Thailand. Dr. Nitithamyong reviewed recent research suggesting several metabolic effects of prebiotics such as promotion of growth of ‘good’ bacteria, improvement in gut barrier function and host immunity, and protection against potentially pathogenic bacteria. A classical effect of prebiotics was demonstrated in the reduction of the prevalence of infectious infantile diarrhoea and traveller’s diarrhoea. Prebiotics provide similar health benefits as dietary fibre in maintaining gut health and decreasing the incidence of constipation. Furthermore, many studies have shown enhancement of calcium absorption with prebiotic intake, mainly exhibited by short- and long-chain fructo-oligosaccharides and inulin. Recent studies suggest that prebiotics may also play a role in weight

management, cardiovascular disease, cancer as well as certain conditions of the central nervous system.

Dr. Rina Augustina provided a scientific update on **probiotics and their role in promoting gut health**. Recent findings are encouraging, with benefit shown in some, but not all probiotics, on the prevention or reduction in risk of antibiotic-associated diarrhoea, *Clostridium difficile* diarrhoea, necrotizing enterocolitis, atopic dermatitis, lactose maldigestion symptoms, ulcerative colitis remission, management of colic, prevention and treatment of bacterial vaginosis. Many probiotic characteristics and health benefits are strain-specific and dose-dependent and have been largely conducted in developed countries. Probiotic studies on immunity, inflammation or metabolic outcomes still need to be further developed. Until now, fast growing and accumulating probiotic studies have been conducted in Southeast Asia (SEA), which focused mainly on acute diarrhoea, child growth, antibiotic-associated diarrhoea, lactose intolerance, *Helicobacter pylori* infection, and allergic diseases with *Lactobacillus* strain appears as the most studied and its application are considered safe. Evidence does not support existing recommendations for routine use of probiotics in healthy individuals and more high methodological quality probiotic studies are required in this region.

A regulatory update on **health claims for prebiotics and dietary fibre** was given by Ms. Norrani Eksan, Ministry of Health, Malaysia. Ms. Eksan noted that the Malaysian Food Regulations permit the optional labelling of dietary fibre and a definition, in line with that of the Codex Alimentarius, is proposed to be gazetted. She summarised several function claims that are permitted for several dietary fibres, highlighting the differences between dietary fibre and prebiotics and the recognised definition of 'prebiotics'. The latest list of permitted other function claims for prebiotics under the Malaysian Food Regulations were summarised as well as several that have been proposed to be gazetted. Each of the components have specific criteria to be met, e.g. there must be a minimum amount that must be present in a food for the claim to be made. Industry may apply for new function claims to be added to the positive list.

Pn. Raizwanis Abdul Rahman, Ministry of Health, Malaysia discussed **regulatory requirements and technological considerations for the use of prebiotics and probiotics in food in Malaysia**. She highlighted that in Malaysia, previously the term "probiotic" was not allowed to be used since there was no regulation for probiotic under the Food Regulations 1985. However, in April 2017, the new regulation, Regulation 26A - Probiotic Cultures and the Twelfth A Schedule have been gazetted and the use of the term "probiotic" has been allowed. There

are several requirements to be complied under that regulation and only those probiotic strains listed under the Twelfth A Schedule are allowed to be added into food. For the strains that are not listed, application must be made by submitting the application form together with supporting documents.

The **clinical use of probiotics in various medical conditions** was shared by Assoc. Prof. Dr. Raja Affendi Raja Ali, Universiti Kebangsaan Malaysia Medical Centre. According to Dr. Affendi, the strongest evidence supporting the use of probiotics is related to the treatment of infective childhood diarrhoea, antibiotic-associated diarrhoea, inflammatory bowel disease and pouchitis. Evidence-based probiotic therapy for the management of irritable bowel syndrome was also discussed. Atopic eczema in children and genitourinary infections are the only non-GI-related medical conditions where probiotics may have some beneficial effects. Probiotics selection and dosing are not the same in all medical conditions, and the efficacy of each probiotic strain cannot be generalised. He pointed out that clearly, many clinical trials are needed in the future to justify the use of probiotics in many other medical condition.

Assoc. Prof. Dr. Kalavathy Ramasamy from Universiti Teknologi MARA (UiTM), Malaysia gave a presentation that centred on the question – **has probiotic- and prebiotic-based research entered the Malaysian mainstream? Current status, gaps and opportunities**. Capitalising on the influence of diet on the gut microbiota, potential microbiota-based therapies which involve the use of probiotics and/or prebiotics have been increasingly explored in the Asia-Pacific region. In Malaysia, the past decade or so has seen numerous successful isolation of new beneficial probiotic strains (mainly lactobacilli, bifidobacteria and pediococci) and prebiotics (oligosaccharides from agro waste). The majority of probiotic and prebiotic-based research (~64%) in this country was found to be of discovery studies at *in vitro* settings. Dr. Kalavathy highlighted that to date, there is only one on going double-centred, double blinded, placebo controlled, randomised trial linking the effects of probiotics on glycaemic control, gut hormones, inflammatory markers and antioxidants to alteration of microbiota ecosystem in T2DM patients. For this purpose, Next Generation Sequencing (NGS) will be conducted to identify the overall bacterial composition in T2DM patients receiving either probiotics or placebo.

The seminar concluded with a series of 11 short communications to enable local researchers to share their current work related to the topic of the Seminar.

# Food and Nutrition Labeling and Claims Workshop in Myanmar



Speakers, chairpersons and organizers of the workshop

Nutrition labeling and claims are seen by health authorities as important education and guidance tools for consumers, with trade relevance to the food, beverage and ingredients industry in the region. Since 2001, ILSI SEA Region has facilitated a series of seminars and workshops for regulators, researchers, and relevant food industry personnel from the region to discuss issues related to nutrition labeling and claims. These meetings serve to provide updates on and key learnings from international and regional developments in nutrition labeling, nutrition and health claims and related issues in Southeast Asia, and to explore potential areas for harmonization.



Dr. Than Htut,  
Myanmar FDA

Continuing this series, ILSI SEA Region held a one-day workshop in Naypyidaw, Myanmar on November 9, 2017. The workshop, co-organized by the Myanmar Food and Drug Administration (FDA), commenced with a review of the **status of nutrition labeling and claims in Myanmar**, presented by Dr. Tun Zaw, Myanmar FDA. Dr. E Siong Tee, ILSI SEA Region Malaysia Country Committee, followed by providing an extensive overview of and update on the **international CODEX food and nutrition labeling and claims guidelines**. Dr. Tee noted that the most recent update to the Codex guidelines on nutrition labeling occurred in 2017, with mandatory declaration of 7 nutrients required on all packaged foods, including energy, protein, available carbohydrate, fat, saturated fat, sodium and total sugars. A separate Codex guideline for the use of nutrition and health claims was adopted in 1997, with the latest revision to this documented in 2013.

The status of nutrition labeling, **nutrition and health claims in Southeast Asian countries** was presented by Ms. Pauline Chan, ILSI SEA Region. Dr. E Siong Tee then followed with a comprehensive review of the **scientific substantiation process for health claims in Southeast Asia**. Dr. Tee shared a list of which health claims were currently permitted in which countries in Southeast Asia and outlined the procedure for gathering evidence and submitting a dossier to the relevant regulatory authority, citing the sources and level of evidence required. He used some examples of health claims submissions in

Malaysia as key learnings or guidance on what to do and what not to do.

Dr. Malee Jirawongsy, FDA Thailand, gave an update on food and nutrition labeling and claims regulation in Thailand. Dr. Moh Moh Hlaing, Ministry of Health and Sports, Myanmar, followed with a discussion on how to **translate nutrient content of pre-packaged snack foods for labeling**. The workshop was concluded by Dr. Daniel Tsi, ASEAN Alliance of Health Supplementation Association (AASHA), with a discussion on the potential for and **importance of harmonization of health supplements regulations in ASEAN**. Dr. Tsi noted that after 10 years of extensive work in this area, 10 ASEAN technical guidelines for health supplements have been completed, and work is ongoing to finalize the ASEAN regulatory framework for health supplements.

This is the first time Myanmar's health authority has actively engaged outside input on this topic, having attended ILSI SEA Region's Nutrition Labeling and Claims seminar in 2016. The Director General of Myanmar FDA, Dr. Than Htut, and 50 officials from the various national food and nutrition agencies joined the workshop, with the aim of establishing the formation of a national working group to develop Myanmar's nutrition labeling and claim guidelines. For countries in the early stages of development of nutrition labeling and claims guidelines such as Myanmar, expert guidance through in-house training is critical.

# Nutrition, Food Safety and Regulatory Issues in Vietnam

To inaugurate the establishment of ILSI SEA Region's Vietnam Country Committee, a half-day seminar was organized in Hanoi, Vietnam on October 24, 2017, to explore the **development and use of food consumption survey data for the assessment of both diet and exposure risk in the ASEAN region**. This inaugural seminar, organized by ILSI SEA Region together with ILSI SEA Region's Vietnam Country Committee, and jointly organized with the Vietnam Food Administration (VFA), was well attended by personnel from the National Institute of Nutrition (NIN), Vietnam Nutrition Association (VINUTAS), and participants from the food and beverage industry.



Speakers and organizers of the seminar

## Development of Food Consumption Data for Exposure Assessment

Dr. Cecilia Acuin, International Rice Research Institute, Philippines, opened the seminar with a discussion on the **use of food consumption survey data for risk and exposure assessments**, sharing the Philippines experience. Dr. Acuin noted that a major issue was lack of representative standardized international exposure data bases for both food consumption and composition, as well as for contaminant occurrence, adding that available data was mostly from industrialized countries.

The **protocol developed for risk and exposure assessment** using the Indonesian Total Diet Study conducted in 2016 was presented by Dr. Nelis Immaningsih, Ministry of Health, Indonesia. Dr. Immaningsih recommended choosing a suitable approach for exposure assessment based on availability of data, noting that the more refined the data the more information that will be gained. Outlined. Dr. Nguyen Van Sy, NIN, provided an update on the **plan and progress of exposure assessment in Vietnam**. Dr. Nguyen announced plans for a Total Diet Study in Vietnam and outlined technical needs that would be required including standardized methodology and training on Total Diet Studies for NIN staff.

**Harmonization of food consumption data across ASEAN countries** will be vital in improving dietary and exposure risk assessment in this region, noted Mr. Nathan Pretseille, AETS Thailand, in his presentation. He outlined the FoodEx2 comprehensive food classification system, developed and maintained by EFSA, that provides a common language for harmonization.

## Regulatory Updates on Food and Dietary Supplements

In the second session of the seminar, Dr. E Siong Tee provided guidance in his presentation on **regulatory approaches to functional foods, fortified foods and dietary supplements**, with a detailed update on the status of approved claims and the regulatory approvals process, with some pertinent examples from the region. Ms. Debbie Wang, ASEAN Alliance of Health Supplements Association, Singapore, concluded with her presentation on **ASEAN guidelines on technical requirements for health supplements** and its impact for industry. The facilitation of the participation of relevant experts to share their experience and approaches from the region can enable the progression of a science-based decision-making process in this area.

# Harnessing New Agriculture and Processing Technologies for Affordable and Sustainable Food Supply



ASEAN member states have laid out their common vision for sustainable agriculture and food security in the region through the ASEAN Integrated Food Security Framework and Strategic Plan of Action for Food Security for 2015-2020. This includes the promotion of sustainable food production by adopting new agricultural technologies to improve productivity and efficiency, reduce post-harvest losses, and address climate change, as well as enhance nutrition. It is critical that key stakeholders along the value chain including regulatory authorities remain up-to-date on the advancement of current and future food agriculture technologies, their potential adoption and impact on the food production chain.

Held in collaboration with the International Rice Research Institute (IRRI) and Department of Agriculture, Philippines, the ILSI SEA Region Philippines Country Committee organized a one-day seminar in Manila on November 20, 2017 to present an update on the role of agriculture and processing technologies in sustainable food crop production, providing benefits across the entire food supply chain.

Prof. Paul Teng, Nanyang Technological University, Singapore, described the **food and agriculture landscape in ASEAN**, discussing the challenges in ensuring uninterrupted, adequate supply of more nutritious and safe food, produced with less land, less water and less labor. He emphasized the important role of science and technology, adequate infrastructure and human resources, as well as enabling policies and regulations. Prof. Teng highlighted new breeding technologies such as gene editing and CRISPR, the need for Technology Enabled Farming (TEF), and new food technologies, going as far as “Food without Agriculture” such as artificial vegetable protein.

Dr. Howarth Bouis, Harvest Plus, USA, highlighted the high prevalence of vitamin and mineral deficiencies, particularly vitamin A, iron and zinc, in many parts of Southeast Asia. Dr. Bouis discussed **the role of biofortification in achieving higher**

**target levels of iron, zinc, and vitamin A through plant breeding**, which can be used as cost-effective strategy against these nutritional deficiencies, minimizing the need for behavior change. Trials conducted by Harvest Plus to prove the efficacy of improved plant varieties have shown favorable outcomes, including improved cognitive function and work performance in the case of iron, better sight adaptation to darkness in the case of pro-vitamin A, and reduced morbidity in the case of zinc biofortification. Dr. Bouis posed the challenge of mainstreaming biofortification as a major strategy to improve affordability and sustainability of the food supply.

The second session began with Dr. Anne Bridges, AACC International, USA, speaking on **expanding the plant breeders tool box with current and future technologies**. New molecular technologies for editing plant genomes, such as Zinc finger nucleases, Talens and CRISPR/Case 9, can help expand the plant breeders tool box to address the challenges of increasing population, climate change, and continuing hunger and malnutrition. Prof. Les Copeland, University of Sydney, Australia, followed by discussing how the **digital revolution and new biotechnologies are transforming the agri-food value chain**. After tracing technological advances in agriculture from the 1960s to 2000s, he outlined research targets for further plant

improvement including exploring genetic diversity in wild relatives of modern crops, better adaptation to heat and drought pathogens, salt tolerance, and use of genetic engineering leading to the discovery of natural variants. Prof. Copeland described what is currently in the biotechnology pipeline: next generation sequencing, genome-wide association studies, microbiomics, epigenetics, gene editing, and CRISPR technology. He concluded with the need for engaging more with social scientists so that scientists could tell their story accurately, responsibly, and in simple language.

Prof. Alonzo Gabriel, University of the Philippines Diliman, discussed the **role of food processing in sustainable food system and nutrition security**, particularly in food safety. He observed that thermal processing, while simple and effective in most cases, when applied to heat-labile raw materials such as fruit juices often leads to deterioration of the finished product. Non-thermal processes such as high pressure processing (HPP), Pulsed electric field (PEF), Cold plasma, UV irradiation, and Hurdle technology provide a promising alternative to traditional techniques, and have been shown to have less effect on quality and are more energy efficient. Prof. Gabriel illustrated how building mathematical models could determine exact effects of product and process variables on microbial inactivation.

The third session of the seminar began with Dr. Cecilia Acuin, IRRI, Philippines, discussing the problem of providing adequate nutrition to the world's growing population. After reviewing the state of the world's food security and nutrition and their link to serious health consequences, Dr. Acuin summarized the **pathways by which improved food systems lead to better diets and nutrition**. These include more efficient food supply chains to facilitate equitable distribution, reducing food loss and food waste, and making foods safer; modifying food environments to make healthier foods more accessible, affordable and appealing; and "nudging" consumer behavior towards diverse, and more nutritious food choices. The challenge is to maximize entry points and minimize exit points of nutrition along all stages in the food chain, from input supply, production, post-harvest storage, to processing, distribution, marketing and retail, and consumption and utilization, whilst considering climate change. Dr. Acuin concluded that improving nutrition will lead to the achievement of the SDGs by integrating all elements of development.

Dr. Celsa Quimio, Bayer CropScience, Philippines, discussed the **impact of regulation on food crop improvement and food trade**. She noted that while products of traditional breeding and mutagenesis are not regulated, products of transgenesis and the newer technologies are rigorously regulated, with time between submission and approval ranging from 1-2 years in Australia to more than 5 years



in the EU and Japan. Hurdles from submission to assessment, approval, and launch must be met to facilitate the entry of the products of these new technologies. These hurdles include lack of harmonization leading to asynchronous approvals, multiple country regulatory requirements, and even political motivations. Dr. Quimio concluded by emphasizing the need for science-based regulation, regulatory harmonization, sound LLP management, and regulatory cooperation among governments.

Dr. Vivencio Mamaril, Department of Agriculture, Philippines, reviewed how the Philippines has been **harnessing new agricultural technologies for sustainable food supply, starting with the adoption of recombinant DNA technology** in 2002. More recently, Joint Department Circular 1/2016 provides clear guidelines for R&D, handling, use, and management of GM plant and plant products derived from the use of modern biotechnology. However, huge R&D investment is needed if the Philippines is to see GM events developed locally. Building a sustainable and strong R&D base alone will require continuous physical capacity building efforts, together with a strong manpower development program. Finally, Dr. Mamaril stressed the need for a biosafety regulatory system that is transparent, predictable, objective, dynamic and expeditious.

The seminar concluded with a **panel discussion on how technology developed in the laboratory could be successfully transferred to industry in order to reach consumers**. This is especially pertinent in the case of GM products where public acceptance is a problem, compounded by false news involving GM crops, or when government is accused of promoting the interest of industry. The supporting role of effective communication using words understandable to laymen, especially when messages come from key opinion leaders and from the academe, the use of infographics, and the proper management of social media, were mentioned as approaches to the problem. The problem of the diminishing number of farm hands and what is being done to support them was also discussed. Farmers are now being given incentives, and there is a move to re-introduce Agriculture as a subject in elementary schools. In the US, farm mechanization has slowly evolved to reduce the necessity of farm hands.

# Seminar and Forum on Food Safety Risk Analysis in ASEAN



**The process of risk analysis is a systematic framework using a scientific approach to three inter-related components: risk assessment, risk management, and risk communication. This process provides science-based information and evidence to regulators and policy makers to assist them in making effective and transparent decisions on food safety.**

ILSI SEA Region has over the years spearheaded engagement with ASEAN bodies including providing scientific input and training to the technical working groups on risk assessment and methodologies on data development for leading food safety authorities. A half-day public **Seminar on Food Safety Risk Analysis** held in Kuala Lumpur, Malaysia in September 2017, provided an overview of the risk analysis framework, discussed the implementation of its components, and shared case studies on risk analysis of contaminants and food additives.

The seminar was followed by a 1½-day closed-door **Forum on Food Safety Risk Analysis** that focused on the current implementation of risk analysis of food additives and contaminants in ASEAN. The forum, jointly organized with the ASEAN Secretariat and ASEAN Risk Assessment Center (ARAC) for Food Safety, was attended by around 50 key Risk Assessors and Risk Managers from the Ministries of Health of the 10 ASEAN member states. Speakers

from Prepared Foodstuff Product Working Group (PFPWG), ASEAN Risk Assessment Centre for Food Safety (ARAC), as well as the Codex Committee on Food Additives (CCFA), shared their experiences as risk managers and assessors and strategies for addressing issues and challenges in risk assessment in the region.

The above Forum, facilitated by experts from JECFA, CCFA and ASEAN, provided a platform to address the gaps in the risk analysis process identified by the health agencies. It provided guidance on how clear roles, responsibilities and tasks can be established between risk assessors and risk managers when implementing risk analysis of food additives and contaminants. Best practices to improve interaction and communication between the 2 key groups were shared. The workshop concluded with broad agreement to progress several of the joint risk assessment projects that were proposed during the establishment of the ARAC in 2016.

# Upcoming Activity Highlights

## Meetings

### Seminar

#### *Trust your Gut: How Gut Microbiota Affects Overall Health*

May 17, 2018, Manila, Philippines

The human intestine carries about 100 trillion microorganisms, representing hundreds of bacterial species, yeasts and parasites. This colonic microbiota is unique to each individual host, and changes in response to diet, pharmaceutical input, age, disease, environmental exposure, and medical or surgical intervention. Understanding the intestinal microbiome is essential for developing disease prevention strategies and personalized health care regimens.

This half-day seminar will present new findings in the field of gut health in relation to health and disease; discuss the importance of gut microbiota across the life span; discuss how healthy gut microbiota can prevent the development of non-communicable diseases; and discuss ways to optimize gut health through nutrition.

More information can be found at <http://ilsisea-region.org/event/gutmicrobiome2018/>

### Seminar

#### *Nutrition Labeling, Claims and Communication Strategies*

August 2018, Kuala Lumpur, Malaysia

Nutrition labeling and health claims provide important point-of-sale information, communicating the nutritional quality and health benefits of a food product, thereby enabling consumers to make informed choices. Disparity between label formats and permitted claims between countries in Southeast Asia has led to trade barriers for food manufacturers and distributors and confusion among consumers.

As part of an ongoing series of seminars on nutrition labeling and claims organized by ILSI SEA Region, this upcoming 1½-day seminar will provide up-to-date information and highlight emerging trends in the region. Country-specific updates on nutrition labeling and claims regulations will be shared, and recent developments in Front-of-pack (FOP) signposting, scientific substantiation and harmonization of claims, as well as the use of nutrition labeling and claims as educational tools, will be addressed by regional and international experts.

## Publications

### **Consumption and Sources of Added Sugar in Thailand: A Review**

*Published in Asia Pacific Journal of Clinical Nutrition, 2018, 27(2):262-283, doi: 10.6133/apjcn.042017.08*

This review extracted information from 24 references, including food balance sheets, household expenditure surveys, food consumption surveys, government reports, published and unpublished studies. Studies on children suggest intake levels between 25 to 50 g/day, while studies on adults were inconsistent. The 2009 Food Consumption Survey of Thai Population showed median intake of sugar and sweeteners for all age groups ranging from 2.0 to 20.0 g per day among males and from 2.0 to 15.7 g per day among females (below the current Thai recommendation of 40 to 55 g/day). Frequently consumed sources of sugar include table sugar, sweetened beverages, and sweet snacks (traditional desserts, baked products, crispy snacks). The review authors recommended an updated nationally representative survey using improved methods to determine the levels and sources of sugar intake in different population groups, including the use of biomarkers to establish consumption levels and multiple 24-h recalls (at least two) to identify food sources that contribute significantly to excess sugar intake.

### **Consumption and Sources of Added Sugar in Indonesia: A Review**

*Published in Asia Pacific Journal of Clinical Nutrition, 2018, 27(1):47-64, doi: 10.6133/apjcn.042017.07*

This review examined data from 18 references including food balance sheets, household expenditure surveys, nutrition surveys, published studies, unpublished theses/dissertations, and government reports. Results were varied, with national surveys suggesting intakes of sugar below 50 grams per day or below 10% of energy intake. Published studies suggested higher levels of intake. Studies used expenditure surveys or a single day of recall to determine dietary intake, and none made use of biomarkers to determine the level of sugar intake. The 2014 Indonesian Total Diet Study estimated that 11.8% of the population consumed >50 grams sugar per day. Common food sources included table sugar, wheat products, milk products, sweetened drinks, condiments, candy and chocolate products. The review concluded that insufficient evidence exists regarding the levels and sources of added sugar intake of different population groups in Indonesia. A nationwide survey using multiple (at least two) 24-hour recalls allowing estimation of usual intake and to identify food sources, and the use of biomarkers to validate intake was recommended in order to provide more accurate information on which to base policy decisions.

# ILSI SEA Region Activities 2018

Meetings	
Symposium on Technologies and Translational Research <i>A New Era in Advancing Sustainable Food System and Public Health Solutions</i> <i>In collaboration with A*STAR, Singapore and CSIRO, Australia</i>	April 23, 2018 Singapore
<b>Food and Nutrients in Health and Disease (FNHD) Science Cluster</b>	
Seminar: Trust Your Gut – How Gut Microbiota Affects Overall Health <i>ILSI SEA Region Philippines Country Committee</i>	May 17, 2018 Manila, Philippines
Seminar on Nutrition and Life Course Approach to Healthy Aging <i>ILSI SEA Region Philippines Country Committee</i>	September 2018 Manila, Philippines
Regional Seminar and Workshop on Food Consumption and Food Composition Data in ASEAN	October 2018 TBC
Regional Conference on Nutrition, Genetics and Immunity – Influence on Inflammation and Impact on Health and Disease	1 <sup>st</sup> Quarter 2019 Singapore (TBC)
<b>Technical Committee on Maternal, Infant and Young Child Nutrition (MIYCN)</b>	
Regional Seminar and Expert Consultation on Maternal, Infant and Young Child Nutrition	November 2018 Kuala Lumpur, Malaysia
<b>Nutrition and Food Guidance for Public Health (NFGPH) Science Cluster</b>	
Regional Seminar on Drivers of Consumer Food Choices <i>In collaboration with FoSTAT, Thailand</i>	March 13-14, 2018 Bangkok, Thailand
Regional Seminar and Workshop on Nutrition Labeling, Claims and Communication Strategies	August 2018 Kuala Lumpur, Malaysia
National Training Workshop on Food Composition Database	September 3-7, 2018 Naypyidaw, Myanmar
<b>Food Safety and Risk Assessment (FSRA) Science Cluster</b>	
Seminar on Risk Assessment of Food Additives <i>In collaboration with US FDA</i>	July 2018 Manila, Philippines
Workshop on World Bank GFSP Food Chemical Risk Assessment Training Module ASEAN <i>In collaboration with AVA Singapore</i>	September 2018 TBC
<b>Sustainable Food Systems (SFS) Science Cluster</b>	
Symposium Session at the 5th International Rice Congress / Proposed Joint Workshop on Sustainability and Food Resilience with AVA, Singapore	October 14-17, 2018 Singapore
<b>Others</b>	
ILSI Annual Meeting 2018	January 19-24, 2018 Southampton, Bermuda, USA
ILSI Southeast Asia Region Annual Meeting 2018 (25 <sup>th</sup> Anniversary)	April 24-25, 2018 Singapore
Several ILSI SEA Region Country Committees events are under planning. Details will be provided upon available information	ASEAN and Australasia

## Research, Meeting Reports, and Collaborative Projects

### Food and Nutrients in Health and Disease Science Cluster

**Estimation of Sodium Intake among Filipinos and their Sources in the Diet**  
*In collaboration with the Food and Nutrition Research Institute (FNRI), Philippines*

Completed. Manuscript under preparation.

**Data Analysis: Levels and Sources of Sugar Intake in the Philippines**  
*In collaboration with the FNRI, Philippines*

On-going

**Measurement of Total Sugar Content of Commonly Consumed Foods in Malaysia**  
*In collaboration with Ministry of Health, Malaysia*

Initiated

### Technical Committee on Maternal, Infant and Young Child Nutrition

**Vitamin D Status and its Correlates among Pregnant Thai Adolescents**  
*In collaboration with Mahidol University, Thailand*

On-going

**Success and Failures of Dietary Supplementation of Pregnant Women (Philippines)**

On-going

**Maternal Nutrition and Birth Outcome in Malaysia: Current Status and Risk Factors (Malaysia)**

On-going

### Nutrition and Food Guidance for Public Health Science Cluster

**Measurement of Total Sugar Content of Commonly Consumed Foods in Malaysia**  
*In collaboration with Ministry of Health, Malaysia*

Initiated

**Pilot Project on Inclusion of Private Data into National FCDBs in Malaysia, Philippines, Singapore and Thailand**  
*In collaboration with ASEANFOODS*

Initiated

**Risks and Benefits of Intense Sweeteners: A Survey for Food Experts and Opinion Leaders**  
*In collaboration with Newcastle University, UK and Universiti Kebangsaan Malaysia*

Completed. Report under revision

**Consumer Perception Regarding Nonnutritive Sweeteners: Singapore and Malaysia Case Studies**

Completed. Report under revision

### Food Safety and Risk Assessment Science Cluster

**Study on Dietary Exposure of Sweeteners in Thai Consumers**  
*In collaboration with Institute of Nutrition, Mahidol University, Thailand*

Completed. Publication under preparation

**ASEAN Food Safety Standards Database**  
*In collaboration with ACCSQ PFPWG*

On-going

### Special Projects and Others

**Prevalence of Hemoglobinopathy among Anemic Individuals in Metro Manila: Data from the National Nutrition Survey**  
*In collaboration with the FNRI, Philippines*

Phase 1 completed; Publication in press  
Phase 2 on-going

**One ILSI Global Project on Nutrition, Health and Wellbeing: Multi-Country Survey - Profiling the Elderly and Review on Healthy Aging**  
*Thailand: In collaboration with Mahidol University;*  
*Philippines: In collaboration with University of San Carlos;*  
*Malaysia: In collaboration with Universiti Kebangsaan Malaysia*

On-going. 2 of the manuscripts under preparation

## Peer-Reviewed Scientific Journals

High Prevalence of Thiamine (Vitamin B1) Deficiency in Early Childhood among a Nationally Representative Sample of Cambodian Women of Childbearing Age and their Children	<i>PLOS Negl. Trop. Dis.</i> , 2017;11(9): e0005814 doi: 10.1371/journal.pntd.0005814
Thalassemia and Other Hemoglobinopathies among Anemic Individuals in Metro Manila, Philippines and Their Intake of Iron Supplements	<i>Asia Pac J Clin Nutr</i> 2017, doi: 10.6133/apjcn.092017.01
ILSI Southeast Asia Region Conference Proceedings: The Gut, Its Microbes and Health – New Knowledge And Applications For Asia	<i>Asia Pac J Clin Nutr</i> , 2017, 26(5): 957-971. doi: 10.6133/apjcn.112016.09
Regulatory Status and Scientific Substantiation of Health Claims in SEA	<i>Malays J Nutr</i> , 2017, 23 (Supplement): S23-S24.
Consumption and Sources of Added Sugar in Thailand: A Review	<i>Asia Pac J Clin Nutr</i> , 2018, 27(2):262-283. doi: 10.6133/apjcn.042017.08
Consumption and Sources of Added Sugar in Indonesia: A Review	<i>Asia Pac J Clin Nutr</i> , 2018, 27(1):47-64. doi: 10.6133/apjcn.042017.07
Patterns of Sodium Intake and Sources of Sodium among Filipino Adults Aged 19 to 50 Years: Findings from the 2008 National Nutrition Survey	Submitted for publication, under review

## Online Monographs/Reports

Report on Food Composition Tables: Review of Status in Southeast Asia Region	Published January 2017 on ILSI SEA Region's website
Functional Foods Monograph 2017	Completed. Publication April 2018
Report on Food Consumption Survey: Review of Status in Southeast Asia Region	Completed. Publication April 2018
Monograph 2 Volume 1: Safety Assessment of Food Additives and Low- & Non-Calorie Sweeteners (LNCS)	On-going
Updated Report on Regulatory Status of Micronutrient Fortification in Southeast Asia	Proposed



ILSI

SEA Region  
Philippines

# Trust Your Gut

## How Gut Microbiota Affects Overall Health

May 17, 2018 | 13:00 – 17:30

Pan Pacific Manila Hotel, Manila, Philippines

Join us at this half-day seminar where new findings in the field of Gut Health in relation to health and disease will be presented. Speakers will be discussing the importance of Gut Microbiota across the life span and how healthy gut microbiota can prevent the development of diseases. Ways to optimize gut health through nutrition will also be discussed



### Program topics

- Normal Gut Microbiota across the Lifespan
- **Effect of Diet on Gut Microbiota**
- Pre- and Probiotics: Their Role in Gut Health
- **Gut Microbiota in Disease**



### Registration Fees

Industry	PHP 2,000
ILSI SEA Region Members	PHP 1,500
Government/ Academia	PHP 1,200

\*Registration is only confirmed upon receipt of registration fee.  
 \*Payment should be made on or before April 30, 2018.  
 \*All costs are non-refundable. \*Student Participation may be accepted.  
 \*Seating is on a first-come, first-served basis. Seating and number subject to change.

Register Now!

<http://tiny.cc/trustyourgut2018>

For more information, please contact

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With Support:



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