



## ILSI makes its mark at the ICN 2009



SEMINAR & WORKSHOP ON  
FUNDAMENTALS OF  
**NUTRIGENOMICS**  
AND ITS APPLICATIONS

A 19TH ICN PRE CONGRESS SYMPOSIUM



**Translating Nutrigenomics Principles into Practice**  
**Dietary Fibre Back in the Spotlight**  
**Promoting Vegetables Intake for Nutrition and Health**  
**Focus Indonesia: Food Safety and Young Child Nutrition**

## MESSAGE FROM THE EXECUTIVE DIRECTOR

As ILSI Southeast Asia Region (ILSI SEA Region) marks the start to a new year and a new decade, we take a look back at our programs and achievements in the last half of 2009. It has been a busy and exciting few months for the Branch, with both international and regional activities that addressed current and new areas of nutrition, food safety and public health.

A key event where ILSI made its mark in 2009 was the 19th International Congress of Nutrition held from 4 – 9 October in Bangkok, Thailand. As the first ICN congress to be held in Southeast Asia, it was a scientific meeting that was eagerly anticipated by ILSI, public health experts and professionals, scientists and industry representatives from all over the world. It was also a unique forum for various ILSI entities – namely ILSI SEA Region, ILSI North America, ILSI Europe, ILSI China and ILSI Research Foundation – to work closely together on several ILSI sessions presented as part of the pre-congress symposia as well as during the congress. ILSI’s participation at the ICN Exhibition through a display exhibition that disseminated the organization’s many scientific publications and program materials also garnered warm and enthusiastic response from the congress delegates. Last but not least, the ICN 2009 was a wonderful opportunity for staffs from the various ILSI branches to foster ever closer ties.

The pre-congress Seminar and Workshop on the Fundamentals of Nutrigenomics and Its Applications was successfully organized by ILSI SEA Region and its partner - Australia’s Commonwealth Scientific and Industrial Research Organization (CSIRO). As part of ILSI SEA Region’s effort to build regional capacity in nutrigenomics, the meeting provided an important opportunity for renowned international experts and researchers to share their work and knowledge in this emerging scientific field with scientists and public health professionals from the Southeast Asia Region. The meeting was another fruitful collaboration between the Branch and CSIRO, and we look forward to more partnerships with CSIRO and its esteemed scientists. In this issue of our Newsletter, we also share a personal perspective from Prof Richard Head, Director of CSIRO Preventative Health Flagship.

I hope you enjoy reading this issue of our Newsletter with a feature report on the ICN 2009, as well as updates on the many other exciting ILSI SEA Region activities that were held in Southeast Asia and Australasia between September to December 2009.

I would also like to wish all our readers a happy and successful 2010!



**Boon Yee Yeong**  
Executive Director  
ILSI Southeast Asia Region

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# ILSI Makes Its Mark at the 19th International Congress on Nutrition, Thailand

For over 50 years, the International Congress of Nutrition (ICN) has been the primary scientific meeting of the International Union of Nutritional Sciences and is held every four years. The first to be held in Southeast Asia in Bangkok from October 4-9, this year's meeting drew over 4,000 attendees from 106 countries. The ICN 2009 theme – Nutrition Security for All – recognizes today's challenges in ensuring an adequate, nutritious, and safe food supply. Some of the presentation slides have been made available at the ICN 2009 website:

[http://www.icn2009.com/congress\\_information\\_Presentations.html](http://www.icn2009.com/congress_information_Presentations.html).



*ILSI staff, scientific directors and advisors, and members from different branches come together at the 19th ICN Congress*

ILSI Southeast Asia Region, ILSI North America, ILSI Europe and ILSI Research Foundation participated actively at the congress, organizing sessions on several

topics including the fundamentals of nutrigenomics and its applications, hydration and health, obesity prevention and effective interventions

using public-private partnerships, and Europe's EURRECA network for aligning micronutrients requirements. ILSI branches also collaborated on a booth in the conference exhibit area and distributed thousands of ILSI publications.

Thailand proved to be a gracious host. The 19th ICN was hosted by the Nutrition Society of Thailand under the patronage of Her Royal Highness Princess Maha Chakri Sirindhorn, who has a great personal interest in nutrition and attended the conference daily. During the princess's tour to the exhibition hall, Mrs Boon Yee Yeong, Executive Director of ILSI SEA Region, presented the princess with a gift of a collection of ILSI's publications.

## ILSI Exhibition

Brought together by staff from ILSI branches around the world, the ILSI's exhibition booth in the ICN exhibition hall attracted hundreds of delegates and visitors with its bright, informational posters and well-stocked shelves of publications. The posters outlined ILSI's mission, activities, and four global issues of focus, namely, risk assessment, biotechnology, functional foods and obesity. More than five thousand copies of ILSI's annual reports, journals, books, monographs, supplements, article reprints, bookmarks, tote bags, Take 10! and Powerkids tools were on display



from various ILSI branches and were well distributed among visitors. ILSI staff served many visiting delegates seeking more information about ILSI activities and other resources in their



geographical areas. The exhibition has successfully highlighted ILSI's strength and commitment in advancing scientific understanding for public health benefits.

## Fundamentals of Nutrigenomics and Its Applications

On October 4, 2009, ILSI SEA Region in collaboration with Australia's Commonwealth Scientific and Industrial Research Organization (CSIRO) organized a pre-congress Seminar and Workshop on Fundamentals of Nutrigenomics and Its Applications to introduce nutrigenomics, a science that examines how genetics and nutrition interaction affects human health, to health professionals and researchers new to this field. The program was well attended to its full capacity with over 60 participants from various universities, health organisations and industries worldwide.



Speakers and organizers of the seminar and workshop

The seminar was opened by Prof Michael Fenech of CSIRO with an overview of nutrigenomics, how nutrition could influence genome stability and how appropriate diet may improve genome phenome. Integrating nutrigenomics with other approaches such as nutrigenetics, transcriptomics, proteomics, and metabolomics could provide better understanding of the homeostatic and pathologic responses to nutrition.

Prof Ahmed El-Soheemy of the University of Toronto, Canada, elaborated on the experimental approaches in nutrigenomics. He emphasized the importance of nutrigenomics study as nutrient intake may produce positive or adverse health outcome depending on the genotype of the individuals, one of the reasons why clinical trials with nutrient often produced mixed results.

The following sessions moved to the translation of nutrigenomics principle into practice with focus on nutrigenomics in health and disease. Prof Lynnette Ferguson of the University of Auckland, New Zealand, explained the use of nutrigenomics to optimize wellbeing and performance, with examples on weight management, cardiovascular disease (CVD) risk reduction and Alzheimer management.

Prof E Shyong Tai of National University of Singapore followed up with a presentation on nutrigenomics in CVD and metabolic disease prevention and control. His study on the Singapore population showed that prevalence of CVD obesity, diabetes and dyslipidemia varied with different ethnicity. Over-nutrition could lead to obesity, insulin resistance and then dyslipidemia; several gene polymorphisms, nutrient profile, and ethnicity influenced the progression of this pathway.

Prof John Milner of the National Cancer Institute, USA, rounded up the session with nutrigenomics in cancer management. Specific gene polymorphisms may influence the response to diet, including fruits, vegetables and meats, as well as individual constituents such as vitamin D, selenium, folate, carotenoids, isothiocyanates and phytoestrogens and thus may be biomarkers for predicting efficacy of diet for cancer prevention and therapy. Diet could influence multiple targets as evident by changes in mRNA profiles.

The workshop session provided a platform for discussing several nutrigenomics case studies and the implication of their findings on the science and future practice of personalized nutrition.

Prof Woon-Puay Koh of National University of Singapore showed how green tea might reduce breast cancer risk in women with high-risk Angiotensin I-converting enzyme (ACE) genotypes. Prof El-Soheemy shared on how functional genetic variants of glutathione S-transferase (GST) might protect against serum ascorbic acid deficiency.

Dr Lin Xie of Jilin University, China, presented that fatty acid desaturases (FADS) gene polymorphism influenced the polyunsaturated fatty acids composition in blood of pregnant women and in breast milk during lactation. Prof Ferguson shared how Crohn's disease patients carrying certain organic cation transporter

(OCTN) polymorphism had higher incidence of mushroom intolerance.

**There is a need for personalized nutrition as one size indeed does not fit all. Nutrigenomics together with other "omics" approaches should help identify those at risk and can benefit from the therapy. However, nutrigenomics is still at its infancy and more studies need to be done to move toward personalized nutrition."**

Prof Richard Head of CSIRO concluded the seminar with sharing on the future of nutrigenomics and the risk, opportunities and implications on nutrition and dietetic practice. Understanding the interaction between dietary molecules and genome is becoming increasingly possible with the advent of biomolecular

technologies. The huge number of genes and the collective size of data sets involved in this nutrigenomics area highlighted the need for sophisticated statistical analysis to extract the knowledge.

The discussions drew questions from participants expressing their interests in nutrigenomics fields. This pre-congress seminar and workshop successfully provided an introduction to nutrigenomics prior to the related ICN symposiums and lectures on nutrigenomics, epigenetics and nutritional genomics.

*A full report of the Seminar and Workshop will be prepared for publication in a peer-reviewed journal in the first quarter of 2010.*

**Upcoming Nutrigenomics Activities**  
**4th Asia-Pacific Nutrigenomics Conference:**  
**Genes-diet & gut health**  
 21-24 Feb 2010, Auckland, New Zealand  
[www.nutrigenomics.org.nz](http://www.nutrigenomics.org.nz)  
**Nutritional Genomics & A Healthy Start to Life**  
 30 Jul 2010, Adelaide Convention Centre, Australia  
 Contact CSIRO for further details

The ILSI North America Hydration Committee collaborated with ILSI SEA Region to organize the pre-congress Symposium on Hydration and Health. Held on October 4, 2009, the session attracted more than 150 participants and provided the latest science on fluid consumption, hydration and dehydration, health promotion and disease prevention.

## Hydration and Health

The session was chaired by Dr Rodolfo Florentino of the Nutrition Foundation of the Philippines and Dr Maxime Buyckx of The Coca-Cola Company, USA. Dr Eric Jequier of the University of Lausanne, Switzerland, Dr Ann Grandjean of the University of Nebraska Medical Centre, USA, and Dr Laurent Le Bellego of Danone Group, France, clarified and provided scientific information regarding the physiology of hydration, fluid requirements, and hydration recommendations with respect to health.

Dr Mario Capanzana of the Food and Nutrition Research Institute, Philippines, presented the data on fluid intake in Asia while Dr Xiaocai Shi of the Gatorade Sports Science Institute, USA, discussed research findings on fluid intake and physical performance in sports and exercise. The speakers also discussed the fluid consumption and hydration status relative to health promotion and disease prevention.

At the conclusion of the hydration and health session, ILSI Europe presented two speakers focusing on its Nutrition and Obesity Program – Dr Colleen Doak of the Free



*Speakers and organizers of the Symposium on Hydration and Health*

University of Amsterdam, The Netherlands, presented the mapping of overweight and obesity data in adults in the WHO European region, while Prof Philip C. Calder of the University of Southampton, UK, focused on nutrition and chronic low grade inflammation in the context of metabolic syndrome.

## Obesity Prevention – Effective Interventions Using Public-Private Partnerships

ILSI Research Foundation (ILSI RF) hosted a session on Obesity Prevention on October 7, 2009. The session featured presentations by investigators from six countries and highlighted various programs supported by ILSI over the past 10 years.

Dr Benjamin Caballero of the Johns Hopkins Bloomberg School of Public Health, USA, kicked off the session with an overview on the challenge of scaling-up to national obesity programs.

Two Latin America presenters highlighted results from the Healthy Lifestyles, Healthy People initiative supported by ILSI members. Dr Markus Nahas of the Universidade Federal de Santa Catarina, Brazil, summarized a randomized high school-based intervention study promoting physical activity and healthy diets while Dr Juan Rivera of the National Institute of Public Health, Mexico, presented the results of the 2-year obesity prevention project in Mexican school children.

Dr Guansheng Ma of the Chinese Center for Disease Control and Prevention, China, presented on Happy 10!: An elementary school-based physical activity intervention. The Life style Modification Program for Physical Activity and Diet supported by ILSI CHP Japan was presented by Dr Takashi



*Various ILSI programs and resource materials on obesity prevention*

Arao of the Waseda University Faculty of Sport Sciences, Japan. Dr Rodolfo Florentino of the Nutrition Foundation of the Philippines and an ILSI SEA Region scientific advisor, presented the PowerKids/WhizKids projects.

Ms Debra Kibbe, Director of Physical Activity and Nutrition (PAN) Program in ILSI Research Foundation, closed with an overview of lessons learned from and opportunities for public-private collaboration on obesity intervention research. Attended by approximately 220 participants, this session successfully highlighted the variety and depth of obesity-related research supported by ILSI, ILSI RF and ILSI branches.

Coordinated by ILSI Europe, the EURRECA (EUROpean micronutrient RECommendations Aligned) Network of Excellence has been established to address variation in European micronutrient recommendation and work towards a framework of advice on micronutrients to better inform policy-makers as they formulate precise recommendations. Funded by the European Commission, the Network is made up of 34 partners based in 17 countries.

### EURRECCA Network of Excellence – Aligning Micronutrients Requirements

The session on EURRECCA took place on October 8, 2009. Attended by over 100 participants, the session discussed the current work, ideas and trends on defining micronutrient requirements, including approaches to harmonize requirements, and evidences used to make dietary recommendations.

Dr Christophe Matthys of ILSI Europe, provided an introduction on the EURRECA project. Prof Janet King of the University of California, Davis, USA, shared on the importance of harmonizing micronutrient recommendations worldwide and summarized WHO/FAO work thus far. Prof Lindsay Allen of the US Department of Agriculture, USA, shared on the harmonized Nutrient Reference Values for populations.

Prof Sean Strain of the University of Ulster, UK, reviewed the studies of biomarker responses to intervention with riboflavin while Prof Susan Fairweather-Tait of the University of East-Anglia, UK, shared on the new evidences for deriving selenium requirements. Dr Ben van Ommen of the TNO Quality of Life, the Netherlands, rounded up the session with a presentation on the network biology approach for micronutrient recommendations.



*Presenters of the EURRECCA session*

### Nutritional Benefit – Risk Assessment of Foods and Food Consumption Patterns



Benefit-risk assessment is a new scientific and policy area, which envisages weighing beneficial and adverse health effects as part of an integrated approach to allow risk assessors to make the optimal choice for public health. A symposium session on Benefit-Risk Assessment of Foods was organized on October 8, 2009. Attended by around 100 participants, the session provided the current states of the art in the risk benefit analysis of foods, food ingredients and dietary pattern, and discussed the experience of such integrated nutritional benefit-risk assessment models.

The session was chaired by Dr Hans Verhagen of RIVM, the Netherlands, and Mrs Boon Yee Yeong of ILSI SEA Region, Singapore. Dr Hans Verhagen provided introduction to benefit-risk analysis and how healthy diet versus food safety contributed to health loss or potential health gain. He also identified current EU activities and introduced ILSI Europe's Program on BRAFO (Benefit-Risk Analysis of Foods) decision tree.

Dr John Hathcock of the Council for

Responsible Nutrition, USA, discussed the dose-response and statistical issues for adapting benefit-risk analysis for regulation and policy decisions. Ms Janine Lewis of the Food Standards Australia New Zealand shared on the development of the Codex on nutritional risk analysis principles and the guidelines for application. The nutritional risk analysis considers the risk of adverse health effects from inadequate and/or excessive nutrients intakes, and the predicted reduction in risk from

proposed management strategies.

The session concluded with discussions on benefit-risk assessment and the regulation of risk and benefits for nutrients. It was agreed that current regulatory environment is not yet prepared for policy decisions based on benefit-risk assessments as the science and concept are still developing. Policy makers need to make decisions, while scientists need to well prepare the options to choose from.

Reports on Other Sessions at the 19TH INTERNATIONAL CONGRESS OF NUTRITION

The symposium on Polyunsaturated Fatty Acids (PUFA) and Human Health provided a high level update on the effects of fatty acids on disease outcomes in children and adults, the mechanisms of action involved, and the considerations relevant to fatty acid metabolism and dietary recommendations.

## Polyunsaturated Fatty Acids and Human Health: Getting the Balance Right

Dr Tomohito Hamazaki of the University of Toyama, Japan presented data on the inverse relationship between blood cholesterol and LDL cholesterol concentrations and mortality patterns in Japan, which challenges the dogma on blood cholesterol and disease risk and also the current Japanese guidelines for blood cholesterol.

An extensive overview of the metabolism and health effect of  $\omega$ -3 PUFA, current intakes in various countries, and strategies to increase very long chain  $\omega$ -3 PUFA status in humans was shared by Prof Peter Howe of the University of South Australia. He also discussed the merits of the  $\omega$ -6 to  $\omega$ -3 PUFA ratio and the  $\omega$ -3 index.

Prof Andrew Sinclair of Deakin

University, Australia highlighted new information on the effects of long chain  $\omega$ -3 PUFA on gene expression of mice fed with different diets. Very long chain  $\omega$ -3 PUFA down-regulated lipid synthesis genes while  $\omega$ -3 docosapentaenoic acid had similar effects to EPA and DHA.

Prof Philip Calder of University of Southampton, UK, shared the anti-inflammatory actions of very long chain  $\omega$ -3 PUFA including aspects of lipid mediator synthesis and inflammatory gene expression and



finished by describing the evidence for a therapeutic effect in rheumatoid arthritis.

Dr Alice Thienprasert of Silpakorn University, Thailand, completed the session by providing an overview of her four studies of fish oil supplementation in Thai schoolchildren which showed reduced illness incidence and severity (mainly upper respiratory tract) and modification of immune function. The symposium drew a number of questions from the audience and has served to raise the profile of fatty acid and lipid science.

## Ensuring appropriate nutrition from the start: infant and young child nutrition

Malnutrition is responsible for about half of the world's annual deaths among children under five. Improving infant and young child feeding practices is crucial to rectify the situation. The WHO hosted a session on Infant and Young Child Feeding (IYCF) provided an overview of the recommended practices and highlighted some countries experiences on successful program and policy strategies for strengthening infant and young child nutrition.

Dr Randa Saadeh of WHO opened the session with an overview of current recommendation and global situation. Currently, less than 35% of infants worldwide are exclusively breastfed during the first 4-months of life. Since 2001, WHO and UNICEF have helped drive the Global Strategy for IYCF in the member countries through

legislation and policy, strengthening of health services, and improving family and community practices.

This was followed by sharing of country experience and success of breastfeeding improvement programs by Dr Mary Chea of the Ministry of Health, Cambodia, and Dr Hailemariam Legesse of USAID in Ethiopia respectively.

Dr Carmen Casanovas of WHO shared on the new WHO Growth Standards developed based on an international group of children, for assessing the optimal

growth and development for all children below 5 years of age worldwide. The complementary feeding guiding principle was presented by Hilary Creed-Kanashiro of Instituto de Investigación Nutricional, Peru, where exclusive breastfeeding until 6 months is emphasized before introduction of complementary food.

The session closed with an update on the revised global indicators for monitoring of feeding practice by Dr Saadeh. These indicators are key to track progress and guide investment to improve nutrition and health during the first 2 years of life.





## Prof Richard Head Director of CSIRO Preventative Health Flagship

Professor Richard Head is the Director of the Preventative Health Flagship of Australia's Commonwealth Scientific and Industrial Research Organization (CSIRO). He is responsible for the management and delivery of science focused on early detection and intervention in chronic diseases of significance to Australia. Under his leadership, the Flagship engages with 7 CSIRO Divisions, over 30 Australian and 8 international research institutions and agencies.

### Question (Q): Could you share with us a brief introduction on the focus area of CSIRO Preventative Health Flagship?

**Prof Richard Head (RH):** The Flagship is focused on three critical areas of human health: colorectal cancer, Alzheimer's disease and obesity. All three draw on specific aspects of science as well as common aspects heavily focused on mathematics and statistics as they relate to data sets. While not restrictive, the Alzheimer's research has called upon brain imaging in a large way, colorectal cancer has drawn on molecular biology, and nutrition and obesity on skills in nutrition and consumer sciences.

### Q: Since its inception in 2002, what would you consider as some of the significant milestones of the Preventative Health Flagship?

**RH:** The significant milestones include the launch in Australia of a series of books promoting human health in society such as The CSIRO Total Wellbeing Diet, The CSIRO Total Wellbeing Diet Book 2, The CSIRO Healthy Heart Program and The CSIRO Wellbeing Plan for Kids. We also carried out a national survey of nutrient uptake and exercise in Australian children together with university partners. In the colorectal cancer area, the early outcomes on understanding the protective value of resistant starch fermentation in the colon have been stimulating. Early detection and quantification of amyloid protein in the brain have also been very important in the Alzheimer's research.

### Q: Do you think that there are opportunities for CSIRO to engage with scientific research and dissemination in Asia and how would you initiate such engagement?

**RH:** I believe that in all three health areas described above, there are opportunities for research and dissemination in Asia. Early examples of interactions between Asian researchers and the Flagship include a collaboration with National University of Singapore in proteomics in colorectal cancer and developing collaborative links with Gachon Gil University, South Korea, to investigate the nutritional and genetic determinants of DNA damage. Lasting research collaborations are usually initiated by personal contact and detailed discussions between scientists with common research interests and complementary skills. In this sense I think that scientific meetings such as those organised by ILSI SEA Region have a critical role to play in nucleating closer research ties between CSIRO and Asian researchers.

### Q: Could you share your views on recent collaborations between CSIRO and ILSI SEA Region and your visions for future collaborations?

**RH:** We have had a very strong interaction with ILSI SEA Region over a decade or more, particularly in bringing together key scientists in areas of emerging interest such as functional foods and nutrigenomics. The series of conferences on functional foods and the initiation of biannuals symposia and workshops on nutrigenomics in collaboration with ILSI SEA Region is proving to be very successful and of increasing interest with the next taking place in New Zealand in February 2010. We are very happy with the collaboration and hope this interaction will continue and provide additional opportunities for research collaboration.

## Improving Nutrition and Health Status of Young Children in Indonesia

On November 12, 2009, ILSI SEA Region, together with Indonesian Pediatric Society (IDAI) and SEAMEO TROP MED, organized a one-day **Seminar on Young Child Nutrition** at Borobudur Hotel, Jakarta, Indonesia, to share the latest updates on the nutritional and health status of young children in Indonesia and discuss strategies to improve feeding practices and growth of young children. Relevant experiences and approaches from France, New Zealand and Malaysia were also shared. Over 220 participants from medical institutions, regulatory agencies, research institutions, and industries attended the seminar.



Speakers and Organizers at the Seminar on Young Child Nutrition

Dr Endang Achadi of SEAMEO TROP MED, Indonesia, started the meeting by sharing the current nutritional and health status of the children in Indonesia. She highlighted that growth faltering in Indonesia coincides with low practice of exclusive

breastfeeding for 6 months. Maternal and child health and a continuum of care strategy should be a priority in the development of health policy and strategy.

Umi Fahmida of SEAMEO TROP MED, Indonesia. Modeling approach could be used to optimize diets within local food availability, food patterns and affordability. Fortified foods and/or nutrient-dense foods are important to meet nutrient requirements especially

acid, iron, zinc vitamin E, and C. In France, milk fortification has been the primary method used to meet the micronutrient requirements of infants. Macronutrient over-nutrition is prevalent among both adults and children in New Zealand while micronutrient deficiency (iron, iodine, vitamin A and D) is prevalent in children below 2 years old. Studies have shown that milk fortified with iron and other micronutrients are as effective as iron supplement with fewer adverse effects in treating iron deficiency. Dr Cameron Grant of University of Auckland, New Zealand, reported that projects are under development to determine if such milk based interventions can reduce communicable disease burden and improve educational performance in children.

Dr E Siong Tee of TES NutriHealth Strategies Consultancy, Malaysia, shared that the nutritional status of Malaysian children has improved markedly over the years. But the younger children, especially those in

**“Stunting is prevalent, affecting more than one third of under-five Indonesian children often at very early age, in which most of growth and development failure is irreversible.”**

“Severe malnutrition is treated according to WHO guidelines, which include the usage of minerals mix and vitamin supplementation”, stated Dr Sri Sudaryati Nasar of University of Indonesia. She also elaborated on the management of iron, vitamin A and iodine deficiencies. Dr Damayanti Rusli Sjarif of University of Indonesia stressed that promotion of exclusive breastfeeding for 6 months, growth monitoring, continuous education on good IYCF practices, and management of severe malnutrition are crucial in reducing under-nutrition

that of iron, zinc, and calcium. Indonesia has many successful stories in working with NGOs to control micronutrient malnutrition, i.e. vitamin A, iodine, and iron deficiencies. However, Dr Robert Tilden of GTZ/KFI, Indonesia, cautioned that data on emerging micronutrients (zinc, folic acid, vitamin B, C, D, and E) important in stunting reduction are insufficient to make inferences on the level of national micronutrient deficiency and to look at the distribution of risk by regions in Indonesia. Early child development and nutrition programs can be a good

**“Food fortification and micronutrient supplementation are some intervention strategies for micronutrient deficiencies after introduction of complementary foods.”**

The WHO guidelines for complementary feeding of both breastfed infants and non-breastfed infants, particularly on the amount of complementary food needed, food consistency, meal frequency, energy density, nutrient contents, safe food preparation and storage, and the use of vitamin and mineral supplements were discussed by Dr

field for collaboration between NGOs, government and various bilaterals. Dr Jean Pierre Chouraqui of University Hospital of Grenoble, France, reported that European infants are at risk for childhood obesity rather than macronutrient deficiencies, toddlers above 12 months in France had inadequate intakes of  $\alpha$ -linolenic

the 1-6 years group, were still the most affected by malnutrition problems. The country is prioritizing health and nutrition intervention programs in children. Current strategies emphasize on the promotion of optimal IYCF practices and education of healthy eating and healthy lifestyle since young.

On September 30 - October 1, 2009, ILSI SEA Region organized the **8th ASEAN Food Safety Standards Harmonization Workshop** at Borobudur Hotel, Jakarta, Indonesia. About 35 regulatory representatives from ASEAN and scientific experts attended the 2-day workshop.

### Harmonization of Food Safety Standards in ASEAN: An Update



*Regulatory representatives, scientific experts, and organizers at the workshop*

To start the workshop, Ms Pauline Chan of ILSI SEA Region provided an overview of ILSI SEA Region's facilitation of the ASEAN Food Safety Standards Harmonization (AFSSH). Recognizing the need for greater harmonization in scientific understanding, regulations and decision making related to food safety in ASEAN region, ILSI SEA Region collaborated with FAO/WHO to explore potential for reaching consensus to bring national food safety standards in line with Codex. A total of 45 food additives, including 22 preservatives, 17 colorings, and 6 sweeteners was selected by the regional regulators to be harmonized.

Dr Elias Escueta of ILSI SEA Region's Food Safety Cluster shared updates on the progress of AFSSH, using the Online Database as a tool. From 2004 to 2009, he reported an overall good harmonization progress of food additives standards toward Codex General Standard for Food Additives (GSFA).

Food regulatory representatives from seven ASEAN countries provided country updates on their food safety standards, melamine threshold standards, and emerging issues.

Cambodia, Indonesia and Laos indicated that the Codex Standards

are currently being used as a base for the development of their national food safety standards. Indonesia has also recently finalized its food contaminants standards for mycotoxin.

Both Philippines and Thailand have adopted Codex GSFA Category System. While Thailand also follows the Codex food additives regulation, the Philippines adopts the Codex list of preservatives, colors and sweeteners, except for cyclamate. Philippines also allow the use of flavoring listed by the International Organization of Flavor Industry and some additives not listed in Codex for specific product category.

In Malaysia, the International Numbering System is now introduced to all permitted food additives and is also reviewing its sweeteners regulation. Meanwhile, Singapore now allows the use of some new additives such as asparaginase, steviol glycoside, lutein, etc, is now allowed under specified condition. The Maximum Limit (ML) of sorbates and benzoates have also been introduced in some food categories in the country.

Food safety experts also covered some topical issues on risk and exposure assessment. Dr Mathew Lau of Nanyang Polytechnic, Singapore, shared on translating microbiological

principle into practice. Dr Stephane Vidry of ILSI Europe, Belgium, presented the concept and application of threshold of toxicological concern (TTC) as a screening tool in risk assessment. The risk assessment and management of sweeteners were elaborated by Dr Peter Abbott of Biosearch Consulting, Australia. Dr Rungnaphar Pongsawatmanit of Kasetsart University, Thailand, shared on Thai national food consumption and Thai exposure assessment online database.

At the workshop, the participants discussed the potential and challenges of expanding the Online Database to include more food additives such as antioxidants, emulsifiers, etc and creating a similar database on contaminants. In light of the recent changes in GSFA Category System, the database needs to be updated to reflect the new system. It was proposed that ILSI SEA Region start collating information on new food additives for inclusion in the database.

It was also agreed at the workshop that ILSI SEA Region would support the ASEAN Consultative Committee for Standards and Quality (ACCSQ) Prepared Foodstuff Product Working Group by sharing the database to facilitate the regional food standards harmonization process.

**In 2001, ILSI SEA Region in collaboration with FAO/WHO helped set up the ASEAN Working Group on Food Safety Standards Harmonization and organized the 1st Workshop on ASEAN Food Safety Standards Harmonization. Subsequently, another 7 additional workshops were held from 2002-2009. The working group comprises key food regulators from all 10 ASEAN countries, who meet annually to update on their national food safety standards regulations and to monitor the harmonization progress of selected food additives towards codex.**

## Hot Issues of Food Safety

A half-day **Seminar on Hot Issues of Food Safety** was organized by ILSI SEA Region in collaboration with National Agency for Drug and Food Control (BPOM), Indonesia and Southeast Asian Food and Agricultural Science and Technology (SEAFST) Centre, Indonesia. Held in conjunction with the 8th AFSSH, the seminar took place on September 30, 2009, at Borobudur Hotel, Jakarta, Indonesia and was attended by over 160 participants.



*Speakers at the Seminars on Hot Issues of Food Safety*

Prof Julie Jones of St Catherine University, USA, presented the first plenary lecture on the art and science of risk communication. She stated that nothing is absolutely safe; all elements have a toxic level and only the dose make the poison. Risk assessment requires defining the health risks of a contaminant in foodstuffs, assessing the dietary exposure, and establishing a tolerable intake. The keys to risk communication are to establish trust; present the risks and the benefits honestly; address consumer fear and the uncertainty involved with risk assessment; and to send consistent messages.

Mr Mark Richards of Agilent Technologies Singapore shared on the approach to food safety residue analysis, steps to choose appropriate methods, and future trends. He emphasized the importance of working backward from regulation parameters and stipulated limits when considering an analytical method. EU Decision 2002/657/EC for example, stipulates samples handling requirements, analytical methodologies, method performance criteria and validation, and the result interpretation very clearly. Due to the increasing number of target compounds that need to be tested, a rapid screening approach for detecting any compound present above detection limit followed by confirmatory analysis of the positives may be the future trend.

Principle and practice of microbial food safety management was presented by Dr Raith Dewanti of Bogor Agricultural University, Indonesia. She outlined the factors influencing food safety management at both country and food chain level. To manage microbial food safety, governments need to possess the epidemiological data, exposure data, and appropriate level of protection (ALOP) based on risk assessment. Food safety incidences involving Salmonella in Denmark, E coli O15:H7 and Listeria monocytogenes in USA were shared to illustrate the practices in microbial management.

Food industry can perform microbial control through various ways: food formulation to reduce water activity or increase acidity; usage of preservatives; traditional and novel processing techniques; and various packaging technology. Additionally, manufacturing control such as appropriate design of facility, zoning, GMP, environment monitoring, sanitation is necessary to prevent cross- or re-contamination, as highlighted by Mr Soo Chuah of Kraft Foods, Australia. He concluded that microbial control requires a holistic and integrated approach focused on preventative systems from design to the consumption of the products.

The importance of dietary exposure assessment in food regulation, how

to choose the appropriate data and the assessment methods, and the challenges of dietary exposure assessments were shared by Ms Christel Leemhuis of Food Standards Australia New Zealand (FSANZ). As case studies, she presented FSANZ's surveys of added colors and intense sweeteners in food. The studies concluded that the dietary exposure for coloring were below the ADIs, whereas for sweeteners, high cyclamates consumers exceeded the ADIs. In response, FSANZ reduced the maximum permissible limit for cyclamates in water-based flavored drinks by almost half to reduce the exposure.

Ms Tetty Helfery Sihombing, Director of BPOM, Indonesia, wrapped up the seminar with sharing on the food safety management in Indonesia and implementation of various food legislations on fresh food, processed food and home. Food control management takes on multi agency-integrated approach to conduct evaluation of processed food prior to distribution and inspection of food establishments and food products. Integrated food safety system in Indonesia brings together agencies involved with foodborne disease surveillance and food safety assessment. Government, industry and consumer all have shared responsibility in ensuring safe food for all.

The seminar covered food safety issues related to risk communication, analytical methodologies, sampling techniques, food safety standards and thresholds, microbial food safety management, exposure assessment, and update on recent surveys on food colors and sweeteners.

The recently established Codex definition on dietary fibre has led to wide international interest among the regulatory, industry and the academic communities. Although non digestibility remains the key characteristic of dietary fibre definition, it is now recognized that the physiological properties of dietary fibre would determine its importance in the human body and its requirement in the human diet.

### Defining Dietary Fibre - The Science and Regulatory Debate

In light of the new development, a one-day regional **Seminar on Dietary Fibre: Current Science & Regulatory Update** was organized by ILSI SEA Region and its Malaysia Country Committee in collaboration with the Food Safety and Quality Division, Ministry of Health, Malaysia. Held on September 28, 2009 in Kuala Lumpur, Malaysia, the meeting provided updates on current understandings of dietary fibre (DF), its characteristics, physiological role and effects on human health, followed by the international and regional regulatory updates, including the legal definition of DF and conditions for claims. Over 160 nutritionists, dietitians, food and regulatory officers attended the seminar.



#### Scientific update and definition of dietary fibre

In her opening address, Prof Julie Jones of St Catherine University, USA, gave an overview of current understanding of dietary fibre in human nutrition. She described the definition of DF and the differences in fibre intakes between different countries, which range from 14 to 29g per day, against the WHO recommended intake of 25 g per day. She highlighted the important roles of fibre and whole grains in human health, in particular gut health, cancer, hypertension, coronary heart disease, weight management, diabetes and glycemic responses. For public health benefit, she recommended partial substitution of refined foods intake with whole grain choices that are high-bran and high-fibre alternatives.

Prof Peter Ellis of King's College London, UK, followed on to describe the physico-chemical properties of DF and their mechanisms of action, which will affect the digestion and absorption of nutrients. The three main factors summarized were the viscosity of water-soluble non-starch polysaccharides (NSP); NSP interaction with starch and -amylase; and encapsulation by cell wall matrix. Dr Ellis summarized several studies utilizing almond seeds as a nutrient source and food model to investigate the release (bioaccessibility) of lipid in the gut.

Dr E Siong Tee, Scientific Director of ILSI SEA Region, elaborated on the Codex definition of DF. The Codex Alimentarius Commission officially adopted a definition of DF in July 2009 and provided guidelines for nutrient content claims. DF are carbohydrate polymers with 10 or more monomeric units that are non-hydrolysed by endogenous enzymes in the human small intestine, provide physiological effect, and are either naturally occurring in food, obtained from food raw material, or synthetic carbohydrate polymers.

To claim as "source of DF", a food must contain at least 3g of DF per 100g for a solid food or 1.5g DF per 100kcal or 10% of daily reference value per serving. To make a "high in DF" claim, a food must contain at least 6g of DF per 100g or 3g DF per 100kcal or 20% of daily reference value per serving. With regards to other aspect of DF that are not included in Codex provisions, Dr Tee shared that government regulators need to decide on whether to include oligosaccharides (carbohydrates with 3 to 9 monomeric units) as DF in their regulation, provide condition for nutrient content claims including for liquid foods, and standardize the serving size and daily reference value (DRV).

In addressing the issues of oligosaccharides as DF (including oligofructose, with degree of polymerization 3-9), Mr Wim Caers of Beneo Orafiti, Belgium, summarized their

characteristic and physiological effects which include non-digestibility, (selective) colonic fermentation, bulking/laxative effect, as well as improved regularity, short chain fatty acid production, besides reduction of cholesterol and glycaemic index. These he said, evidently demonstrate that oligofructose meet the criteria of a DF and that many countries have already defined oligosaccharides as part of DF.

## Industry's perspective

From the food industry's point of view, Ms Chor Yin Fun of Mead Johnson Nutrition illustrated the market trends of DF in food products, including the market's advancement to declare the DF content claim and nutrient function claims on the food product, in addition to the declaration of DF level in the Nutrition Information Panel (NIP). Despite the food industry's support to adopt a clear definition of DF at the national level, to date, there is no single analytical technique that can be applied to measure DF in alignment to the accepted definition.

**"Industries need clear regulatory guidance on key principles that include: the definition of DF and non-digestible oligosaccharides; applicable analytical methods; energy conversion factors specific for dietary fibre; and provisions on content claim and nutrient function claim."**

## Southeast Asia Region Updates

Representatives from regulatory agencies in Malaysia, Philippines, Singapore, and Thailand presented the current definition of DF at the national level, including criteria and conditions for nutrient related claims and shared future directions for dietary fibre regulations in their respective countries.

According to Ms Norrani Eksan of the MOH (Ministry of Health) Malaysia, the authority is progressing with the approval of nutrition claims on DF that includes the source and the level of DF in the product (e.g. high fibre claim

upon fulfilling the DF content of 6 g per 100g solid food or 3 g per 100ml liquid). Although several nutrient function claims on dietary fibre are allowed, disease reduction claims are currently prohibited in Malaysia.

In the Philippines, Ms Helena Alcaraz of the BFAD (Bureau of Food and Drug) shared the authority's supports for the Codex proposed conditions for nutrient content claim for DF and will consider carbohydrates with 3 to 9 monomeric units as DF. She said that quantitative declaration of DF with health and nutrition claims are permitted based on scientific substantiation in compliance with specific provisions in the Codex Guidelines on Nutrition and Health Claims.

For Singapore, Ms Lim Lee San of the AVA (Agri-Food and Veterinary Authority) Singapore, highlighted that in addition to nutrient content claim and nutrient function claim for DF, Singapore has established two nutrient specific diet-related health claims for DF, namely heart disease and cancer risk reduction since April 2009. Singapore will review the existing guidelines based on Codex's latest recommendation, in particular, for carbohydrates from 3 to 9 monomeric units. Emphasis will be placed on establishing scientific evidence to support physiological effects of benefit to health, as recommended by Codex.

On the position in Thailand, Dr Tipvon Parinyasiri of the Thai FDA (Food and Drug Administration) said that Thailand currently follows Codex's guidelines on the definition and nutrition claim on DF. Thailand allows nutrient function claim for DF with regards its ability to increase mass in the digestive system and stimulate bowel movement. Thailand will decide on the status of compounds with 3 to 9 monomeric units and emphasis will be placed on the physiological effects of a particular compound.

A lively question and answer session discussed on the needs to harmonize the definition of dietary fibre and the importance for the regional countries to decide on adoption of oligosaccharide based on scientific evidence and consensus. ILSI SEA Region will continue to facilitate scientific forum and harmonization efforts on this topic for the region.



Speakers and organizers at the Seminar on Dietary Fibre



Prof Julie Jones answering questions from the floor.

## Why your Mum was right when she told you to eat your vegetables!

Prof Julie Jones of St Catherine University, USA, opened the seminar with an overview on vegetables for nutrient improvement and overall health. Fruits and vegetables contain over 900 phytonutrients and their consumption lowers risk of overweight, hypertension, coronary heart disease, diabetes, and certain cancers.

The varying dietary guidelines in different countries was presented by Prof Katrine Baghurst of the National Health Committee, Australia – while some countries such as Indonesia, Malaysia, Philippines and Korea only recommend eating a variety of food with no specific mentioning of vegetables, other countries such as Japan or Bangladesh are more specific by recommending more green leafy vegetables consumption.

Dr Barbara Winters and Ms Wendy Jeffrey of Campbell Soup Company shared on the role of processed vegetables in addressing the intake gaps and the nutrient retention of these vegetables. Perishability, preparation, price, portability, and palatability are some of consumption barriers which processed vegetables can help to address. Trial results shared by Dr Winters showed that providing vegetable juice helped to increase vegetable intake, reduce weight and lower blood pressure.

“Contrary to some myths, canned and frozen vegetables are nutritionally comparable to their fresh counterparts and are naturally preserved,” highlighted Ms Jeffrey. Studies show that vitamins and carotenoids are retained in the processed vegetables and in some cases, the bioavailability of the nutrients, e.g. lycopene, are enhanced.

Dr Ron Jones of the Department of Primary Industries (DPI), Victoria, Australia shared on the agro-

On November 12, 2009, ILSI SEA Region’s Australasia Country Committee organized a one-day **Seminar on Vegetable Nutrition** at Telstra Conference Centre, Melbourne, Australia. Attended by over 70 participants, this seminar brought together the latest findings in vegetable nutrition research and insights into vegetable consumption with consumer communication strategies to promote the benefits of vegetables in the diet.



*Speakers at the Seminar on Vegetables Nutrition*

development of healthier vegetables using broccoli as an example. Using variety selection in combination with understanding of phytonutrient synthesis and metabolism, DPI has managed to produce Booster™ broccoli high in antioxidant and sulforaphane.

Prof Christopher Ward of Royal North Shore Hospital, Prof Michael Fenech of CSIRO, and Prof Jonathan Hodgson of University of Western Australia each shared their studies on the role of vegetables phytonutrients in human health. Prof Fenech indicated that a serving of vegetables could offer more than 100 phytonutrients. They may prevent chromosome damage and ageing by stimulating detoxification of genotoxins, preventing reactive oxygen species generation, and providing nutrients required for DNA replication and repair.

Prof Ward shared that phytochemical-rich vegetables such as garlic, onions and tomatoes can inhibit blood clotting and contribute to cardiovascular health. Prof Hodgson also highlighted that

flavonoids and nitrate in vegetables may synergistically enhance nitric oxide status and improve vascular function and cardiovascular health. Dietary nitrate, derived primarily from green leafy vegetables, potatoes and beetroot, can improve endothelial function and lower blood pressure.

Mr Vic Cherikoff of Vic Cherikoff Food Services presented on the health benefits of Australian Aboriginal wild plants. He pointed out that today’s population diet consisted of only 50-60 different plant foods, a mere 10% of the variety enjoyed by traditional Aborigines. Some native plums and peppers have high phenolics and anthocyanins and their inclusion in diet may improve nutrition.

The diversity of Asian vegetables and their antioxidant contents was elaborated by Ms Mia Isabelle of ILSI SEA Region, Singapore. Some unique Asian vegetables such as matrimony vine, coriander, Chinese kale, water spinach and red chili, were shown to be high in antioxidant capacity, total phenolics, carotenoids and vitamin E levels.



Vegetables provide significant health benefits and various approaches are necessary to promote their consumption.

Prof David Cox of CSIRO shared on ways to encourage children to eat vegetables. Although innate dislike to bitter taste is a barrier to vegetable intake, food choice is a learned behavior. Daily exposure in small quantity could improve children's liking for vegetables. Children's liking for non-sweet vegetables also varies by preparation and presentation.

The impact of the 2+5 fruit and vegetable

campaign on vegetable consumption in Australia was evaluated by Mr Chris Rowley of Horticulture Australia. This nationally coordinated approach has been effective in reaching consumers, driving not only awareness but also assisting in behavior change. The mean intake of vegetables in Western Australia has increased from 2.6 in 2002 to 3.2 servings in 2005.

The symposium concluded with a

panel discussion. Participants agreed that vegetables provide significant health benefits; more needs to be done to promote their consumption and processed vegetables can help fill the intake gap. The discussion also highlighted the importance of parents as role models and innovative vegetable preparation (food mixing instead of hiding) in increasing vegetables consumption among children.

## Experts in the Philippines Explore on Nutrition for Heart Health

ILSI SEA Region's Philippines Country Committee held a **Symposium on Nutrition and Heart Health** on November 25, 2009, at EDSA Shangri-la Hotel, Manila, Philippines. Attended by more than 150 participants, the symposium provided a forum for discussing the nutritional and dietary aspects of cardiovascular disease (CVD) prevention and control, and the challenges and opportunities they offer to public health and food industry.



Participants at the Symposium on Nutrition and Heart Health

Dr Emilie Flores of the University of the Philippines Manila reviewed the connection between various types of dietary fats and CVD. She emphasized that it is the quality and type of fat in the diet rather than the total fat that determines cholesterol level and CVD risk. She then detailed the role of trans-fat on CVD risk.

Studies on the effect of coconut oil on lipid parameters and CVD risk was shared by Dr Rody G Sy of the University of the Philippines - Philippine General Hospital, which showed mixed results. He cautioned against relying on association studies conclusions and suggested conducting clinical trials with surrogate and hard endpoints to better clarify this issue.

Dr Trinidad P Trinidad of Food and Nutrition Research Institute reviewed the various mechanisms by which dietary

fibre, particularly soluble fibre, may exert favorable influence on cholesterol level. Studies on the effect of coconut flour on total cholesterol and triglyceride levels showed that the high fibre content of coconut flakes could be effective in reducing cholesterol.

Public health interventions, challenges faced, and examples of successful population-based programs for the prevention and control of non-communicable diseases (NCD), including CVD was shared by Ms Prescilla Cuevas of the Department of Health, Philippines. The open forum discussed further the government's response to the CVD problem and the need for more effective communication including mandatory nutrition labeling. Adoption of an integrated, comprehensive and community-based program is crucial for CVD prevention and control.

## Upcoming Activities

### ILSI Annual Meeting 2010

ILSI is organizing its Annual Meeting on January, 22-27, 2010 at Rio Mar Beach Resort and Spa, Rio Grande, Puerto Rico, which brings together members, trustees, science advisors, and staff from around the world. Experts gather to exchange ideas on recent ILSI programs, new scientific challenges, and emerging opportunities for ILSI to make a difference in human and environmental health. Annual Meeting gives attendees the chance to learn about local and regional issues - whether in Asia, the Americas, Africa or Europe - and to put them into international context.

This year's business and scientific meetings are being brought to you by ILSI, ILSI North America,

the ILSI Research Foundation, and the ILSI International Food Biotechnology Committee.



Broad spectrum of topics will be covered:

- Science, funding source, and conflict of interest
- Uses and misuses of neuroimaging
- The concept of thresholds in conducting risk assessment
- Consequences of changes—large and small—to the food supply
- The latest in biotechnology

Come and share your own insights on how ILSI and its partners can help improve our understanding of all these issues and more.

### Calendar of Regional Activities and Programs 2010

#### 1st Quarter 2010

##### **ILSI Annual Meeting 2010**

January 22-27, Puerto Rico

##### **Dietary Fibre Seminar and Training Workshop**

March, Thailand

##### **Food Safety Seminar and Training Workshop**

March, Vietnam

#### 2nd Quarter 2010

##### **ILSI SEA Region Annual General Meeting**

April, Singapore

##### **Seminar on New Biotechnology Crops for Sustainable Agriculture - Stack Traits**

May

##### **Seminar and Workshop on Physical Activity and Dietary Behavior**

May / June, Singapore, Australia (tbc)

##### **ASEAN Dietary intake and Exposure Assessment Training**

tbc

#### 3rd Quarter 2010

##### **Regional workshop on nutrition labeling and scientific substantiation of claims**

July / August

##### **Biennial Nutrition and Health Symposium – Nutrition and Cognition**

tbc

#### 4th Quarter 2010

##### **RDA and FBDG seminar and workshop**

November, Thailand (in conjunction with 5th ACD)

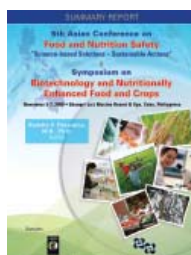
##### **9th ASEAN Food Safety Standards Harmonization Workshop**

December

### 2009 Publications

ILSI SEA Region has published a **Summary Report on the 5th Asian Conference on Food and Nutrition Safety: Science-based Solutions – Sustainable Actions** held on November 5-7, 2008, in Philippines.

The report provides an overview of emerging food safety challenges in Asia; the food safety issues in the entire food supply chain; challenges posed by microbial and chemical hazards; water, nutrients and ingredient safety; as well as how food industry could face the challenges. The **Summary Report on the Symposium on Biotechnology and Nutritionally Enhanced Food and Crops** held as a pre-conference event on November 3-4, 2008, was also published concurrently. The report outlines the nutritional status and food security in Asia; social impact, communication and consumer understanding of genetically modified (GM) crops; safety regulation of GM crops in Asia; biosafety and risk assessment; as well as development of biotech crops in Asia.



The **Report on Symposium on Diet, Nutrition and Immunity** held on April 16-17, 2008, in Singapore, has also been published in Asia Pacific Journal of Clinical Nutrition. It reviews the current scientific information on the development of the immune system particularly in infancy and the role of diet, exercise and aging on immunocompetence, together with the molecular processes involved.

*Season's Greeting  
& Best Wishes*

**for a Happy, Healthy and Successful New Year.**

From President Geoffry Smith, Executive Director Boon Yee Yeong, Members, Scientific Directors and Advisors as well as Staff of ILSI SEA Region

Visit us at [www.ilsil.org](http://www.ilsil.org) to find out more about our upcoming activities and programs.



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