

## Green Tea Catechin Sensing System

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### <Summary>

Green tea polyphenols have emerged over the past two decades as an important dietary factor for health promotion. There is considerable evidence that tea polyphenols, in particular (-)-epigallocatechin-3-gallate (EGCG) inhibit carcinogenesis. However, the mechanisms for the cancer-preventive activity of EGCG are not completely characterized and many features remain to be elucidated. Recently we have identified 67-kDa laminin receptor (67LR) as a cell-surface EGCG sensing receptor and the relating molecules that confer EGCG responsiveness to many cells at physiologic concentrations. Here we review some of the reported mechanisms for EGCG action and provide an overview of several molecules that sense and manage the physiological functions of EGCG.

Polyphenon E is a green tea catechin formulation, which has been known to prevent tumorigenesis in cancer clinical trials. 67LR has been shown to involve the anti-cancer effect of Polyphenon E. Radioactive nanoparticles are used in molecular imaging and cancer therapy. Radioactive gold nanoparticles coated with EGCG have been shown to specifically target prostate tumor cells that express 67LR.

Although understanding the high-resolution spatial distribution of functional food factors is indispensable for elucidating their biological or pharmacological effects, there has been no analytical technique that can easily detect the naïve molecular localization in mammalian tissues. We established a novel *in situ* label-free imaging technique for visualizing EGCG and its metabolites within mammalian tissue micro-regions after oral dosing.

## Bisphenol A in Domestic and Imported Canned Foods

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### <Summary>

Bisphenol A (BPA), a suspected endocrine disrupter, is used mainly as a monomer in the production of polycarbonate and epoxy resins. Metal cans for food are usually coated with BPA-based epoxy resins. Therefore, residual BPA in can coatings tends to migrate into the food when the can is heated during cooking or sterilization. We surveyed the BPA content in 100 domestic and 60 imported canned foods purchased in Japan. In the domestic canned foods, the highest BPA content was found to be 30 ng/g in hashed beef stew and the average of 3.7 ng/g. In contrast, the imported canned foods were found to contain much higher BPA levels. The maximum BPA content was found to be 390 ng/g in demiglace sauce, 340 ng/g in white sauce, and 320 ng/g in both gratin sauce and blue crab. The average was 57 ng/g, which was 15 times higher than that found in the domestic canned products. The BPA content of domestic canned foods was found to be significantly lower than the levels found in the imported canned foods or the levels reported in other surveys. We believe this dramatic difference results from the use of “BPA reduced cans” which Japanese can manufacturers have developed over the past decade.

## Dynamic Metabolism of Nondigestible and/or Nonabsorbable Carbohydrate via Intestinal Microbes and Its Health Effects

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### <Summary>

Recently, nondigestible carbohydrates (dietary fiber, oligosaccharide, sugar alcohol *etc.*) are developed actively, and have been used already in healthy foods. Nondigestible carbohydrate which the digestion and absorption are escaped in the small intestine, reaches the large intestine and is metabolized to short chain fatty acids, carbon dioxide, hydrogen gas, amino acid, vitamin and unknown materials. Short chain fatty acids reveal especially physiological functions and are utilized as an energy source of host. Therefore, even carbohydrate which is not digested by digestive enzymes supplies the energy to the host via intestinal microbes. The available energy is approximately 2 kcal/g. The available energy is evaluated using breath hydrogen test.

A lot of kinds (500 - 1000 species) and 100 trillion of intestinal microbes are inhabited in the gastrointestinal tract, and make us the intestinal microflora. Intestinal microbes are the indigenous microflora from birth to dead in individual person, and are concerned with the health of host. The intestinal microflora is affected by sex, age, health status, stress, environment and diet. As the short chain fatty acids produced by intake of nondigestible carbohydrate cause acidic environment in the digestive tract, the beneficial microbes such as Bifidobacterium, and *etc.* which are resistant for acidic environment can proliferate, but harmful microbes cannot. As a result, the share of beneficial microbes increases and the environment of digestive tract is improved. Therefore, nondigestible carbohydrate is called as an agent of prebiotics.

Although nondigestible carbohydrate reveals many health benefits, oligosaccharide and sugar alcohol with small molecular weight have a demerit which causes transitory osmotic diarrhea in the sufficient ingestion. The permissible amount which is changed by digestibility and molecular weight is 0.3 - 0.4 g/kg body weight for nondigestible di- and tri-saccharides.

## “Nutrition Labelling Systems – Using Data on Current Trends and Research from around the World to Predict the Future”

### 4. Consideration for Policy Development to Lead Consumers to Healthier Food Choices and Better Health

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#### <Summary>

In Japan, function claims are not permitted for foods except following two categories under the Food Sanitation Act and the Health Promotion Act: Food for Specified Health Uses and Food with Nutrient Function Claims. Under such a situation, the Cabinet decided in June, 2013, that Government of Japan develop and start a new system which enable manufactures to make function claims for processed food and fresh food according to the scientific evidence-based substantiation under the responsibility, with reference to the system of dietary supplements in the US (Implementation by the end of March 2015). However, the US system has been pointed out that it might mislead consumers. The Consumer Affairs Agency (CAA) holds jurisdiction over the food labelling system and takes lead role in steering administration of consumers' affairs. Therefore, CAA is now conducting a consumer survey regarding function claim literacy in Japanese consumers in order to ensure that the new system will not mislead consumers and can lead them to rational and spontaneous food choices. CAA will draft the new system based on the survey findings, and aims to develop and start the new system hearing opinions from experts and the public.

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## Long-Term Impact of Community-Based Information, Education and Communication Activities on Food Hygiene and Food Safety Behaviors in Vietnam: A Longitudinal Study

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### <Summary>

**Background:** Ingestion of contaminated water or food is a major contributor to childhood diarrhea in developing countries. In Vietnam, the use of community-based information, education and communication (IEC) activities could be a sustainable strategy to improve food hygiene and food safety behaviors. This study thus examined the long-term impact of community-based IEC activities on food hygiene and food safety behaviors.

**Methods:** In this longitudinal study, we interviewed caregivers of children aged between six months and four years in suburban Hanoi. Baseline data were collected in January 2006 (n = 125). After conducting IEC interventions, we collected a 1st set of evaluation data in January 2007 (n = 132). To examine the long-term impact of the interventions, we then collected a 2nd set of evaluation data in January 2008 (n = 185). Changes in childhood diarrhea prevalence, IEC coverage, and food hygiene and food safety behaviors were assessed over a two-year period using bivariate and logistic regression analyses. Effective IEC channels were determined through multiple linear regression analysis.

**Results:** Childhood diarrhea was significantly reduced from 21.6 % at baseline to 7.6 % at the 1st post-intervention evaluation ( $P = 0.002$ ), and to 5.9 % at the 2nd evaluation. Among 17 food hygiene and food safety behaviors measured, a total of 11 behaviors were improved or maintained by the 2nd evaluation. Handwashing after toilet use was significantly improved at both evaluation points. Overall, 3 food safety behaviors and 7 food hygiene behaviors were found to have significantly improved at the 1st and at the 2nd evaluations, respectively. Flip chart communication administered by community groups was identified to be the most effective IEC channel for effecting behavior change ( $P = 0.018$ ).

**Conclusions:** Flip chart communication administered by community groups is effective for improving multiple food hygiene and food safety behaviors in sustainable ways, and should be included in water and health promotion programs.

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## 20th International Congress of Nutrition (ICN) and ILSI Europe Organised Workshop on “Low-grade Inflammation: A High-grade Challenge. Biomarkers and Modulation by Dietary Strategies”

RYUJI YAMAGUCHI, Ph.D.

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### <Summary>

The IUNS 20th International Congress of Nutrition (ICN) was held in Granada, Spain from September 16th to 20th. This ICN is held once every four years and is the largest international conference in the field of Nutrition.

The last time was held in Bangkok, Thailand and ILSI SEAR has taken the lead in managing the booth and scientific session related to ILSI. At this time, ILSI Europe has completely managed the ILSI scientific sessions and our ILSI booth. It was decided that next ICN would be held in Buenos Aires, Argentine in 2017.

At this conference, it has been decided that Tokyo will host the 22nd ICN Congress in 2021. Since one of our goals is to further the understanding of scientific issues related to nutrition, ILSI Japan needs to promote the renovation of nutrition research in Japan and take a responsibility for summarizing the ILSI activities to the congress. It should be realized that we would be required consideration of a certain level of financial supports.

At this congress, there are several ILSI Executive Directors from Europe, Focal Point in China, Brazil, SEAR and Japan, and also some ILSI Presidents from SEAR and Argentine. This is my report outlines this Congress as well as ILSI Europe organised workshop on “Low-grade Inflammation: A High-grade Challenge. Biomarkers and Modulation by Dietary Strategies” which took place prior to the official opening of the Congress.

## Symposium on “Policy Considerations for Expansion of Function Claims to Drive Better Consumer Understanding of Dietary Supplement Benefits in Japan”

KAZUO SUEKI

*Chief Executive Officer*

*The General Incorporated Association of International Foods & Nutrition*

### <Summary>

On October 7, 2013, in Tokyo, AIFN (The General Incorporated Association of International Foods & Nutrition) and ACCJ (American Chamber of Commerce in Japan) co-hosted a symposium under the theme of “policy considerations for expansion of function claims to drive better consumer understanding of dietary supplement benefits in Japan”. The aim of this symposium was to promote understanding of the function claim related legislation with the international trends in mind. Currently, there is no coherent regulation system for dietary supplement in Japan. Therefore, the government is in the process of formulation of new guidelines. It is important to promote utilization of scientific evidence showing the functionality of the component to substantiate the health benefit. Through the symposium, we intended to clarify components that the Japanese government should incorporate into the system in order to expand the functional claim based on the international trends of regulation with a focus on the consumer benefits of labeling functional claims. For this purpose, we have invited foreign speakers who have information on international trends and have experienced practical cases in the countries such as US, European and ASEAN countries.

## Report on Workshop on New Breeding Techniques for Regulatory Considerations

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### <Summary>

Plant breeding plays a significant role to accomplish sustainable agriculture and increase productivity in agriculture. Breeding has been drastically advanced in the past few decades, such that crops derived from GM technology were first commercialized in 1996. Recently, new plant breeding techniques have started to be used in agriculture and discussion on whether or not varieties derived from certain new techniques fall the scope of the GMO legislations is underway. European Commission and Food Standards Australia New Zealand respectively held a workshop on new plant breeding techniques. In addition, Japanese Ministry of Agriculture, Forestry and Fisheries together with OECD Secretariat proposed to hold another workshop on new plant breeding techniques, which will be held in Paris, France in February 10th 2014.

Reflecting on these circumstances, ILSI Japan held a Workshop on New Plant Breeding Techniques on October 15th, 2013 in Tokyo together with The LMO Committee of Japanese Society of Breeding, The 160 & 178 Committee of the Japan Society for the Promotion of Science, and Gene Research Center University of Tsukuba.



## Report of the 35th Session of the Codex Committee on Nutrition and Foods for Special Dietary Uses

HIROAKI HAMANO

*Advisor*

*ILSI Japan*

### <Summary>

The 35th Session of the Codex Committee on Nutrition and Foods for Special Dietary Uses (CCNFSDU) was held in Bad Soden am Taunus, Germany from 4 to 8 November 2013. The Committee was attended by 264 delegates representing 67 Member Countries, one Member Organization (EU) and 33 International Organizations (NGOs).

The Committee agreed;

- to advance to Step 5 the Proposed Draft Revision of the Codex General Principles for the Addition of Essential Nutrients to Foods (CAC/GL 9-1987),
- to forward the NRV-R for Protein to be included in the Codex Guidelines on Nutrition Labelling for adoption,
- to retain at Step 4 the Review of the Codex Standard for Follow-up Formula (CODEX STAN 156-1987),
- to return to Step 2/3 for redrafting, comments and further discussion at the next session the Proposed Draft Additional or Revised Nutrient Reference Values for Labelling Purposes in the Codex Guidelines on Nutrition Labelling and the Proposed Draft Amendment of the Standard for Processed Cereal-Based Foods for Infants and Young Children (CODEX STAN 74-1981) to include a New Part B for Underweight Children,
- to submit to the Commission a proposal for new work on Potential NRV for Potassium in Relation to the Risk of NCD, and
- to establish an electronic Working Group to provide recommendations for the Committee on the actions and the next steps and a revised list.

The Committee welcomed the offer by Zimbabwe and South Africa to develop a discussion paper and project document on a definition of Biofortification or Biofortified Foods for consideration at the next session.

< Friends in ILSI >

Report of the 5th BeSeTo Meeting and “Workshop on Regulatory Requirements of Nutrition Labelling”

RYUJI YAMAGUCHI, Ph.D.

*Executive Director*

*ILSI Japan*

<Summary>

The BeSeTo meeting started in 2009 at the suggestion of ILSI Korea. At that time, there was no such kind of system to promote inter-branch cooperation in ILSI, however in order to exchange information on food safety within Asian region, ILSI Korea, ILSI Focal Point in China and ILSI Japan have held the BeSeTo meeting every year.

Since the ILSI HQ has set one of strategic goals of inter-branch cooperation, this meeting has a positive impact on ILSI activities.

The ILSI Focal Point in China has hosted the 5th BeSeTo meeting and it was held in Beijing on 10th and 11th of September, 2013. It is worth noting that we have observers from related government authorities in each country as with last year.

We have authorities from China National Center for Food Safety Risk Assessment (CFSA), and from Korean FDA and Dr. E-Siong Tee, Malaysia, as a representative from Southeast Asia Region.

From Japan, Mr. Nobuyoshi Shiozawa, Assistant Manager, Food Labelling Division, Consumer Affairs Agency, kindly attended this meeting.

This year, ILSI Focal Point in China held a seminar named “Workshop on Regulatory Requirements of Nutrition Labelling” in collaboration with CFSA on the morning of September 10th.

Governmental representatives from each countries and Southeast Asia Region were also invited as speakers. Some observers from ILSI SEAR and ILSI Taiwan also participated in this seminar. The details of this seminar were briefly reported.

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## The 3rd Asia Pacific International Conference on Food Safety

JENNY CHANG, Ph.D.  
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*ILSI Taiwan*

Taiwan Association for Food Protection, an affiliate of International Association for Food Protection, with the aid of more than 20 other governmental and non-governmental organizations, and industrial associations in Taiwan jointly organized the 3rd Asia Pacific International Conference on Food Safety. This conference was held at the National Taiwan University International Convention Center in Taipei, Taiwan from October 29 to November 1, 2013. The organizers have made a concerted effort to build a platform for the local participants to exchange experience and expertise with international experts. The conference attracted more than 750 attendees from 28 countries. Around 40% were foreign participants from Korea, China, ASEAN countries, U.S.A., Japan, Europe, Australia/ New Zealand and Africa, etc.

### 1. Conference Program

The conference was chaired by Prof. Lee-Yan Sheen, President of Taiwan Association for Food Protection, while Dr. Michael P. Doyle, Regents' Professor and Director, Center for Food Safety, University of Georgia, U.S.A., served as the Vice Chairman. There were a total of 66 invited speakers from 20 countries to provide versatile programs including Global Chinese Food Safety Forum, 2 plenary lectures and 18 thematic sections in addition to about 100 poster communications. Global Chinese Food Safety Forum was first kicked off as the pre-conference program with 16 speakers sharing the latest development in macro-management (e.g. government, risk management and industry) and micro-management (e.g. PAHs, pathogens and toxins) of food safety issues.



Opening ceremony speech:  
Professor Lee-Yan Sheen,  
Conference Chairman;  
President of Taiwan Association for Food Protection

Opening ceremony speech:  
Dr. Michael P. Doyle,  
Conference Vice Chairman;  
Regents' Professor and  
Director, Center for Food  
Safety, University of  
Georgia, U.S.A.

Vice-Premier Chih-Kuo  
Mao of the Executive Yuan  
appealed to strive to  
improve the food safety  
environment in Taiwan

Opening ceremony  
congratulatory speech: Dr.  
Donald W. Schaffner,  
President, International  
Association for Food  
Protection (IAFP)

In the opening ceremony, among many dignitaries were Vice-Premier Chih-Kuo Mao of the Executive Yuan, Taipei Mayor, host city and sponsor, Lung-Bin Hau and Dr. Donald W. Schaffner, President of International Association for Food Protection (IAFP). In his congratu-

latory speech, Vice-Premier Mao addressed the many measures Taiwan government is undertaking, from revamping the Act Governing Food Sanitation to enhancing surveillance program. The objectives are to prevent food safety incidents and to ease consumers' increasing concern over food safety.



Mayor Lung-Bin Hau of Taipei noted the conference will be beneficial to help resolve domestic food safety issues via the information exchange with the top international experts



Opening Ceremony of the 3rd Asia Pacific International Conference on Food Safety

Dr. J. Jen, former Under Secretary of USDA, presented “Global Food Safety Trends, Challenges and Solutions” in the first plenary lecture. He pointed out the global food safety trends are toward more laws and regulations, tighter inspections, more careful food productions and more food safety research. With solution recommendations, Dr. Jen also stated that current challenges are for the academia to make research practical, for the media to learn responsible science-based reporting, and for the consumers to learn food safety facts to avoid over-reactions.

In the other plenary lecture, Dr. V. Prakash, Distinguished Scientist of CSIR of India, talked about “Food Safety in the Contest of Food and Nutrition Security”. He discussed the importance of food safety in ensuring food and nutritional security. He also urged that the traditional and ethnic knowledge demands regulation harmonization for internal consumption and external markets. Dr. Prakash recommended a country like Taiwan must address food safety generically by outreaching to countries with successful experience in utilizing general principles of Codex.

Eighteen thematic sections followed with the topics listed below:

- S1 New Development of Food Safety Regulation
- S2 Global Trend in Food Safety
- S3 Global Collaborations on Food Safety
- S4 Responsibility of Food Companies on Food Safety
- S5 Food Labeling S6 Risk Assessment
- S7 Risk Management
- S8 Risk Communication
- S9 Food Traceability System
- S10 “Food Safety ” for Chronic Disease Prevention through Product Reformulation
- S11 Modern Agricultural Biotechnology and Biosafety
- S12 Food Contamination
- S13 Novel Detection Methods in Food Safety S14 Food Safety and Additives
- S15 Environmental Considerations on Food Safety
- S16 Good Food Safety Practices in Food Processing S17 Food Borne Illness
- S18 Effect of Package Materials on Food Safety

Many food safety challenges and gaps from farm to table were identified in the thematic sections. Knowledge in risk assessment and management of pathogens, toxins and contaminants, including packaging materials, were shared. Solutions and recommendations, including food traceability soft technology, for the government and industries were proposed. Biosafety as in genetically modified foods and nutritional safety to prevent chronic diseases via product reformulation were also discussed.

It is worth mentioning that S14 section on Food Safety and Additives was sponsored and organized by ILSI Taiwan. Mr. Fintan Sit of DSM Nutritional Products of Greater China illustrated industrial practices to ensure safety of ingredient supply. Dr. Jianbo Zhang of China National Center for Food Safety Risk Assessment discussed food additive use management in China, from regulation to surveillance with incident handling including “Black List”. Dr. Jenny Chang utilized the presentation titled “Food Additives at Crossroads – Strategy to Move Forward” to appeal to all stakeholders to take responsibility in understanding, handling and communicating food additives, which may ultimately provide positive impact on food supply.



Group photo taken after opening ceremony

## 2. Conference Summary

The 3rd Asia Pacific International Conference on Food Safety provided a variety of programs including Global Chinese Food Safety Forum, 2 plenary lectures and 18 thematic sections, in addition to about 100 poster communications. The food safety subjects included regulation, risk assessment, control and management, labeling, testing, industrial practice, research findings and communication, etc. The challenges, gaps, uncertainties and trends in food safety were discussed. International collaboration and harmonization were also emphasized to meet the demanding trend in global food migration. Participants from 28 countries were enlightened, stimulated and challenged in this Asia Pacific, more correctly global, event. They also inquired, exchanged ideas, debated and networked with each other in such a platform.

## 3. Conclusion

The success and value of the conference was acknowledged by the attendees in sharing

information, providing update, stimulating each other and fostering future collaboration. Out-reaching to countries with successful experience utilizing general principles of Codex may serve as a good guidance for a country like Taiwan in need of food safety best practices.



Local and international participants viewing the poster section

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