

## Recent Studies on Umami and Global Umami Communications

Kumiko Ninomiya, Ph.D.  
*Corporate Fellow*  
*Global Umami Communications*  
*Ajinomoto Co., Inc.*

### <Summary>

Umami is one of the basic tastes which imparted by salts of glutamate, one of amino acids and nucleotides such as 5'-inosinate and 5'-guanylate. Researches on umami have been actively conducted by Japanese researchers after 1980's. There have been long scientific discussions whether umami was the basic taste or not before the discovery of glutamate receptor on our tongue in 2002 by US research team. Since glutamate receptor was discovered also in the stomach, it has been shown that physiological significance of glutamate signaling in gut-brain communication.

As Japanese cuisine 'WASHOKU' was listed in Intangible Heritage of UNESCO in December 2013, many people in the world have great interests in Japanese cuisine which popularity of outside of Japan was started mainly by SUSHI. Many chefs outside of Japan came to Japan to learn Japanese cuisine, and umami has been being recognized as a common taste in the world. Major target audience in global umami communications is not only for scientists but also for people working in culinary fields all over the world. Recently many chefs are interested in the science behind the cooking method, communication of current scientific knowledge on umami is more important than

Some recent researches on umami as well as understandings of umami in culinary field are introduced in this chapter.

## International Congresses of Nutritional Science to Be Held in Japan

Hisanori Kato, Ph.D.

*Organization for Interdisciplinary Research Projects,*

*The University of Tokyo*

*Secretary General, 12th Asian Congress of Nutrition*

*Chair of Preparative Committee,*

*22nd International Congress of Nutrition*

### <Summary>

Two major international congresses in the area of nutritional science will be held in Japan in the next few years. One is the 12th Asian Congress of Nutrition (12th CAN) which will be held in Yokohama in May 2015. The other is the 22nd International Congress of Nutrition (22nd ICN) in 2021 in Tokyo. One reason international scientific societies have decided to bring these congresses to Japan is the continuous effort of Japanese academic societies toward internationalization. Another reason is the high reputation of Japanese scientists from all over the world. In this article, I will first introduce the international organizations behind these congresses, the Federation of Asian Nutrition Societies (FANS) and the International Union of Nutritional Sciences (IUNS). I will then summarize the events and program for the 12th ACN and its status of preparation. In addition, I would like to show the process of how we won the bid for the 22nd ICN. The success of these congresses will surely enhance Japan's presence in international nutrition and food science. The 12th ACN will be held several months following the publication of this issue. I sincerely hope many readers will participate in the event and make it a chance for active communication not only through presentations but also through discussions and meeting new colleagues from around the world.

## EU's Agricultural Quality Schemes

Mervi Kahlos

*First Secretary*

*Trade Section*

*Delegation of the European Union to Japan*

### <Summary>

This article is based on a presentation given during ifia 2014 exhibition in Tokyo on 22nd May. While food quality was touched upon from the point of view of obligatory food safety requirements, the focus of the presentation was, and respectively of this article, on the European Union's (EU's) agricultural quality schemes, in particular those covering Protected Designations of Origin (PDOs) and Protected Geographical Indications (PGIs), both of which are known as Geographical Indications (GIs).

Due to a strong call by European consumers and in order to help farmers to better communicate the qualities and characteristics of agricultural products with high added value, the EU has put into place a vigorous agricultural product quality policy. Although the policy has existed at the European level already since 1990's for agricultural products and foodstuffs, it has been reinforced during recent years. In 2010 a so called quality package was adopted. The package contains a set of legislative proposals designed with a view of creating a coherent, yet simplified policy, which covers a wide range of quality aspects, such as marketing standards and certification schemes.

As part of the package, in early 2013, Regulation on quality schemes for agricultural products and foodstuffs entered into force. The Regulation covers PDOs, PGIs, Traditional Specialties Guaranteed (TSG) and optional quality terms. While organic products also fall under the EU's quality policy, their actual rules are set in a separate regulation.

Numerous benefits, which arise from the quality schemes, have made especially the PDO and PGI schemes popular in most of the EU member states. This holds true also for countries, which joined the EU more recently and did not have corresponding national legislation in the past. Participation in the PDO and PGI schemes provides the producers premium prices along with high level of protection for the product names since GIs are also a category of intellectual property rights. Consumers are also guaranteed high quality, safe and authentic products. Marking these aspects of products are the quality logos, the use of which becomes obligatory as of 4 January 2016 for agricultural and foodstuff PDO and PGI products originating in Europe. Thanks to these logos, the products can be easily identified in the market. The logos also indicate that the product names are protected, and that products are subject to regular official controls and verifications at all stages of production, processing and distribution.

In order to have a product designated as a PDO or a PGI and to be granted the use of quality logos, producers work together to establish a product specification, which later on needs to be observed in the production. Compliance with the product specification is controlled even before a new PDO or PGI product can be placed in the market. In the EU all PDO and PGI names are entered into a publicly accessible register, which makes the system transparent and increases its credibility in the eyes of consumers, producers and anyone with an interest in the system.

As a proof of popularity of the PDO and PGI schemes, more than a thousand agricultural product and foodstuff names have been registered in the EU.

## Evaluation of the Metabolism and Safety in Drug- induced Hepatitis - Activity of the Subcommittee for Spheroids in the Safety Evaluation Forum-

Takuo Ogihara, Ph.D.  
*Professor*  
*Laboratory of Clinical Pharmacokinetics*  
*Department of Pharmacology*  
*Graduate School Takasaki*  
*University of Health and Welfare*

### <Summary>

Drug-induced liver toxicity, which is a common reason for market withdrawal of approved drugs, occurs not only in the parent compounds but also in their metabolized compounds and intermediates. Currently, *in vitro* studies using a primary culture of human hepatocytes are performed by pharmaceutical companies to evaluate toxicity and the metabolism of drug candidates. Conventional evaluation methods have had several faults, because primary hepatocytes are active for only a few days. Therefore, the application of three-dimensional (3D) cultured hepatocytes (hepatocyte spheroids) that maintain liver-specific functions for longer periods is required.

The Safety Evaluation Forum (Tanimoto Gakko, <http://www.tanigaku.gr.jp/>) was established in 1986, and the forum subcommittee for spheroids was organized in 2008 to study toxicity and the metabolism by using hepatocyte spheroids. We examined human hepatic metabolism and the toxic evaluation system of drugs through the activity of this subcommittee. As a result, because it was possible from long-term repetitive exposure to drugs in the test system using spheroids, we were able to observe temporal changes in the metabolic process and metabolites which were difficult to detect conventionally. Moreover, it was possible to detect drug-induced liver damage in a state closer to *in vivo*. The activity and results of this subcommittee are outlined in this review.

## Workshop about “How We Should Consider about the Safety of Probiotics”

*Risk Assessment Task Force  
Food Safety Research Committee  
ILSI Japan*

### <Summary>

In recent years, the functionality of the microorganisms including lactic acid bacteria has been noted. These microorganisms are generically called “probiotics”, and various researches and developments have been carried out on them. We need to think about the safety assessment taking into account the biological effects due to not only the ingestion of microbial cells as a food ingredient but also the fact that these microorganisms are alive. Then, the idea of learning about the focus points in the safety assessment of probiotics was rising from the group members of ILSI Japan Food Safety Research Committee Risk Assessment Task Force.

In such a background, we invited Dr. Shizunobu Igimi, the director of division of biomedical food research, NIHS, as a lecturer, and planned to hold a workshop entitled “How we should consider about the safety of probiotics” on September 4, 2014.

Dr. Shizunobu Igimi, a specialist in the field of food poisoning for many years, also involved in the study of oral vaccine for the prevention of infectious diseases. Furthermore, he has also been implicated in setting an international guideline for the safety evaluation of genetically modified microorganisms. Based on these experiences, Dr. Igimi wrote general reports on the safety of probiotics in technical books, and gave a lecture on it at a seminar of Japan Society of lactic acid bacteria. So we hoped to take his lecture in our task force, and this time, we come to hold a workshop. We described the lecture outline below.

---

## Achievements and Future Opportunities for Project IDEA (Iron Deficiency Elimination Action)

Takashi Togami

*Director*

*ILSI Japan CHP*

Kumiko Takanashi, R.D., Ph.D.

*Scientific Program Manager*

*ILSI Japan CHP*

### <Summary>

Fifteen years have passed since Project IDEA was initiated. The project accomplished significant outcomes during this period, and we are very thankful for scientific and financial support from academia, governments, industry and international organizations. During 2013 and 2014 several important, international conventions, meetings and workshops were held on iron-fortification of foods in order to combat iron deficiency. The programs of Project IDEA were well received and acknowledged because of the scientific evidence-based approach they employ. In September 2013, the IUNS 20th International Congress of Nutrition was held in Spain. The symposium session “Micronutrient Fortification -Science and Strategies for Public Health in Asia” was held by ILSI and GAIN (Global Alliance for Improved Nutrition). This important symposium focused on Project IDEA in Asia, condiment fortification in China, Vietnam and Cambodia, and rice fortification in the Philippines. This article summarizes achievements of Project IDEA in the four countries from scientific research to the introduction of fortified products onto the commercial market in each country.

In August 2014, the WHO Consultation Meeting “Fortification of Condiments and Seasonings with Vitamins and Minerals in Public Health” was held in New York. This meeting aimed to provide WHO with information and knowledge of local practices in order to help the WHO develop guidelines for the fortification of condiments and seasonings. In this meeting, the effectiveness of condiment and seasoning fortification was discussed from basic research to the introduction of the products on the market. ILSI Japan CHP was invited.

In September 2014, the WFP (World Food Program) held the workshop “Scale Up Rice Fortification in Asia” in Bangkok. Administrative officers, scientists and industry members from 9 Asian countries were invited to the workshop. ILSI Japan CHP was also invited. The workshop discussed the effectiveness of rice fortification to improve nutrition status in Asia. Representatives from 9 countries expressed their strong interest in the introduction of fortified rice.

In closing, we summarize what we can and should do in coming years based on what we have already achieved.



Group photo of meeting participants



With delegates of the Philippines

The International Symposium on the Recent Advances and Controversies  
in Measuring Energy Metabolism RACMEM 2014  
- Sharing the Advanced Research Data on Energy Metabolism and Dis-  
semination of Data from Japan-

Koichi Yasunaga  
*Director*  
*R&D - Development Research –*  
*Health Care Food Research*  
*Kao Corporation*

<Summary>

Obesity is one of the risk factors for the metabolic syndrome that leads to chronic diseases such as diabetes, hyperlipidemia and hypertension. Increasing obese population become a major social problem due to lowering the quality of life and skyrocketing medical cost, which makes global health authorities including WHO take the urgent countermeasures against obesity. Long-term weight changes are solely determined by the balance of energy intake and expenditure. It is difficult to measure the energy expenditure accurately because of various complicated interactions among life situation, activity level, and body composition. The objective of the present international symposium is to learn and discuss updated research data on energy metabolism in human and animals measured by sophisticated methods such as human calorimeter, double labeled water, and accelerometer among the researchers and engineers in the fields of nutrition, agriculture, medical science, health science and sports science. The first symposium as held in Denver, USA in 2008 and the second was held in Maastricht, the Netherlands in 2011. This time, the third was held in the Sumida Seminar Hall of Kao Corporation at Tokyo, Japan on October 11th and 12th 2014. Approximately 170 participants including *c.a.* 60 from overseas attended the symposium and actively discussed research data on energy metabolism associated with exercise, nutrition, brown adipose tissue, circadian misalignment, appetite and animals.



## The Gut, Its Microbes and Health New Knowledge and Applications for Asia

*ILSI Southeast Asia Region*

### <Summary>

ILSI Southeast Asia Region held the conference ‘The Gut, Its Microbes and Health: New Knowledge and Applications for Asia’ in Singapore on October 8-9, 2014, highlighting current scientific knowledge on the gut microbiome, its interactions with diet and nutrition, and the implications for health and disease, particularly in Asian populations. The conference, organized in collaboration with the Commonwealth Scientific and Industrial Research Organisation (CSIRO) Australia, National University of Singapore (NUS), Newcastle University International Singapore (NUIS) and the Indonesian Scientific Society for Probiotics and Prebiotics (ISSPP), was well attended by over 200 participants from around the region, representing academia, government and industry sectors.

## Report of the 42nd Session of the Codex Committee on Food Labelling

Hiroaki Hamano  
*Advisor*  
*ILSI Japan*

### <Summary>

The Forty-second Session of the Codex Committee on Food Labelling was held in Rome, Italy at FAO from 21 to 24 October 2014. The Session was attended by 231 delegates representing 71 member countries, one member organization (EU) and 19 international organizations. Total 10 participants attended from Japan consisting of 2 from the Consumer Affairs Agency, 2 from the Ministry of Agriculture, Forestry and Fisheries, 5 from NGOs and the author as a technical advisor to the CAA. The summary and conclusions of the Session are as follows.

The Committee:

- Endorsed the labelling provisions in the standards submitted by CCFFP, CCFFV and CCPFV;
- Provided replies for the monitoring of Codex Strategic Plan 2014-2019;
- Agreed to circulate the proposed draft revision of the Guidelines for the Production, Processing, Labelling and Marketing of Organically Produced Foods: Organic Aquaculture at Step 3 for comments and to discuss at the 43rd Session;
- Agreed to circulate the proposed draft revision of the General Standard for the Labelling of Prepackaged Foods: Date Marking at Step 3 for comments and to discuss at the 43rd Session; and
- Agreed to defer discussion on the labelling on non-retail containers, on issues related to internet sales of food and proposal to revise the General Guidelines for the Use of the Term “Halal”.

<Friends in ILSI>  
Report of the 6th BeSeTo Meeting and  
Satellite Symposium on "Microbial Criteria in Foods"

Daisuke Tsuchiya  
*Yakult Honsha Co., Ltd*  
Aya Futagami  
*Yakult Honsha Co., Ltd*

<Summary>

ILSI Korea, ILSI Focal Point in China, and ILSI Japan held the 6th BeSeTo meeting in Tokyo on the 25th and 26th of September, 2014. We have observers from related government authorities in each country as with last year. We have authorities from China National Center for Food Safety and Risk Assessment (CFSA), National Health and Family Planning Commission (NHFPC), and from Korean Ministry of Food and Drug Safety (MFDS). From Japan, Mr. Takashi Himeda, Director General of the Food Safety Commission Secretariat, kindly attended this meeting. The agenda consisted of an exchange of information and discussions on future cooperation. As part of the exchange of information, each branch reported on topics related to food safety and risk assessment. And this year's MAFF/ILSI project was also presented by ILSI Japan. In the discussion on cooperation, the participants agreed with analyzing the outcome of this project and making a detailed report for using in various countries.

This year, ILSI Japan held a symposium named "The 3rd Satellite Symposium on Microbial Criteria in Foods" on the morning of September 25th and Professor Hajime Toyofuku of Yamaguchi University, and governmental representatives from South Korea and China were invited as speakers. The details of this symposium were briefly reported.

