



FP7-REGPOT-Improving Research Capacity of TUBITAK MRC Food Institute on Functional Foods, Nutraceuticals, and Natural Health Products (NutraHEALTH)

Grant Agreement No: 316012



SEMINAR ON FUNCTIONAL FOODS & NUTRACEUTICALS

Programme

TÜBİTAK TÜSSİDE, Gebze/Kocaeli, Turkey
13 and 14th September 2013



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13/09/2013	Arrivals of the participants
20:00 – 21:30	Dinner with participants at TÜBİTAK TÜSSİDE Restaurant
14/09/2013	
07:30 – 08:30	Breakfast at TÜBİTAK TÜSSİDE Restaurant
08:30 – 09:00	Registration
	Moderators: Prof. Dr. Gürbüz GÜNEŞ Assoc. Prof. Cesarettin ALAŞALVAR
09:00 – 09:05	Prof. Dr. Murat AYDIN (President of TÜBİTAK MAM) <i>Welcome</i>
09:05 – 09:15	<i>Short film about TÜBİTAK MAM</i>
09:15 – 09:30	Prof. Dr. Gürbüz GÜNEŞ (Director of Food Institute) <i>Short presentation about TÜBİTAK MAM Food Institute</i>
09:30 – 09:45	Assoc. Prof. Cesarettin ALASALVAR (Project Coordinator) <i>Short presentation about the NutraHEALTH project</i>
09:45 – 10:15	Prof. Dr. Fereidoon SHAHIDI (CANADA) <i>Antioxidants: Fundamentals, Food Application, and Health Effects</i>
10:15 – 10:45	Prof. Dr. Young-Joon SURH (KOREA) Cancer Chemoprevention with Dietary Phytochemicals
10:45 – 11:15	Nutrition Break & Networking
11:15 – 11:45	Prof. Dr. Chin-Kun WANG (TAIWAN) <i>The Trend for the Interaction of Food Industry and Health</i>
11:45 – 12:15	Prof. Dr. Jordi Salas SALVADO (SPAIN) <i>Functionality of Mediterranean Diet: The Predimed Study</i>
12:15 – 14:00	Lunch at TÜBİTAK TÜSSİDE Restaurant & Networking
14:00 – 15:30	Visiting pilot plant of Food Institute
16:15	Bus leaves from TÜBİTAK TÜSSİDE to İstanbul



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Dr. Shahidi is a University Research Professor, the highest rank the University gives for research, in the Department of Biochemistry at Memorial University of Newfoundland (MUN). He is cross-appointed to the Department of Biology, the Department of Ocean Sciences, and the aquaculture program. He is a Chair Professor at National Chung Hsing University in Taiwan, an Honorary Professor at the Chung Shan Medical University, also in Taiwan, a Visiting Professor at Jiangnan University in China and a Distinguished Visiting Professor at King Saud University in Saudi Arabia. He collaborates with many other universities in countries such as Brazil, France, Korea, Japan, Poland, Thailand, Turkey, USA, and elsewhere around the globe.

Dr. Shahidi has made numerous contributions to both the basic and applied areas of food chemistry and functional foods and is the only Canadian on the ISI list of top 15 most highly cited scientists in agricultural sciences and was ranked 3rd in citations for Agricultural Sciences for the decade of 2001-2011. He has received numerous awards from different societies and organizations for his pioneering scientific achievements. Dr. Shahidi's work in these and other areas has led to the publication of over 700 research articles in the form of peer reviewed journals and book chapters. He is also the editor/author of some 63 books. These publications along with his extensive list of presentations have led to the advancement of the discipline of food science at both the national and international levels. His former students, now his colleagues, occupy key positions as faculty members, government workers and industry leaders in over a dozen countries. This is yet another indication of the influence of his research and global contributions to science.

ANTIOXIDANTS: FUNDAMENTALS, FOOD APPLICATION, AND HEALTH EFFECTS

Fereidoon Shahidi

Department of Biochemistry, Memorial University, St. John's, NL, Canada A1B 3X9

Antioxidants are compounds that are known to delay the onset of oxidation with its deleterious effects in both food and health. The compounds involved are varied in nature and are mostly phenolic in nature. However, the mechanisms by which they render their effects may not necessarily be due to the antioxidant action alone as their beneficial effects in food and health might also be via routes independent of their antioxidant action. In addition, the efficacy of antioxidants is dependent on the system in which they are present as well as the hydrophilic- lipophilic balance (HLB) of the compounds present. Thus, lipophilization of polar antioxidants might facilitate their incorporation into certain foods and into mitochondria, hence stabilizing foods and biomolecules against oxidation. The presentation provides examples to demonstrate the points of interest.



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Dr. Young-Joon Surh is a Professor of Biochemistry at the College of Pharmacy, Seoul National University, South Korea. He currently serves as Director of Tumor Microenvironment Global Core Research Center Research Center (GCRC), which is supported by the National research Foundation, Ministry of Education, Science and Technology. Prof. Surh graduated from Seoul National University with BS (Pharmacy) and MS (Biochemistry) and earned his PhD degree at the McArdle Laboratory for Cancer Research, University of Wisconsin-Madison, USA. He had postdoctoral training at the Massachusetts Institute of Technology (MIT). In 1992, he was appointed as a tenure-track Assistant Professor at Yale University School of Medicine. Since relocating to Seoul National University in 1996, Prof. Surh has been investigating the molecular mechanisms of cancer prevention with natural products, with emphasis on intracellular signaling molecules as prime targets. He has served as a member of the editorial board member of more than 30 international journals, including *Carcinogenesis*, *International Journal of Cancer*, *Molecular Carcinogenesis*, *Cancer Letters*, *Cancer Prevention Research*, *Mutation Research*, *Life Sciences*, *Molecular and Cellular Biochemistry*, *Free Radical Research*, *Food and Chemical Toxicology*, *Biofactors*, *Genes and Nutrition*, *Molecular Nutrition and Food Research*, etc. He is also editor of the following books: *Oxidative Stress, Inflammation and Health* (CRC Press), *Molecular Targets and Therapeutic Use of Curcumin* (Springer-Verlag), and *Dietary Modulation of Cell Signaling Pathways* (CRC Press). Prof. Surh has published more than 250 papers in peer-reviewed international journals and more than 70 invited editorials, reviews and book chapters. The total number of citations of his publications is more than 10,000 (excluding self-citations). He received numerous awards including Elizabeth C. Miller and James A. Miller Distinguished Scholar Award from Rutgers University (2011), McCormic Science Institute Award from American Society for Nutrition (2009), the Merit Award from the International Society of Nutraceuticals and Functional Foods (2010). He published a seminal review article, titled cancer chemoprevention with dietary phytochemicals, in *Nature Reviews Cancer* which has been highly cited (more than 1,000 times).

CANCER CHEMOPREVENTION WITH DIETARY PHYTOCHEMICALS

Young-Joon Surh

College of Pharmacy, Seoul National University, Seoul 151-742, South Korea

Recently, much attention has been focused on the use of plant-based substances for cancer prevention or as adjuncts to conventional anticancer therapy. Numerous biologically active substances derived from fruits, vegetables, nuts, herbs and spices, collectively termed 'phytochemical', have been reported to possess the cancer preventive/therapeutic potential. The rapid progress in our understanding of the cellular signal transduction pathways that are subjected to fine-tuning has paved the way to unveiling the molecular milieu of cellular homeostasis. Our current research program concerns the evaluation of cancer chemopreventive and cytoprotective effects of some phytochemicals present in dietary and medicinal plants and their underlying molecular mechanisms. The implication of inflammatory cell/tissue damage in pathophysiology of human cancer and some metabolic disorders has been under intense investigation both at the research level and in clinical practice. Numerous studies have been reported with the global biochemical profiling technologies, such as DNA microarray, proteomics, metabolomics, lipidomics, etc., to identify and characterize a series of critical molecules/changes in the inflammatory signaling. It is by gaining this type of mechanistic understanding of a disease that researchers will unlock the keys to discovering new diagnostics and therapeutic strategies in the management of inflammation-associated metabolic disorders. Inflammation, a major culprit of cancer, can modulate NF- κ B, AP-1, Nrf2, HIF-1 α , STAT3 and p53 tumor suppressor. The proper regulation of these redox-sensitive transcription factors mediating pro- or anti-inflammatory signaling hence provides important strategy for the prevention and treatment of cancer.



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Dr. Chin-Kun Wang is a Distinguished Professor in Chung Shan Medical University, the Honorary President of Nutrition Society of Taiwan, council member of FANS, and Executive Member of ISNFF. He got his Ph.D. degree from National Taiwan University and worked at Chung Shan Medical University in 1993. In 1996, he promoted as a full Professor, and then took the positions of the chair, dean, vice president and president in Chung Shan Medical University. His research work is focused on human clinical trials and human metabolism of medicine, nutritional supplement, nutraceuticals, functional foods and herbs. He got the National Award of Biomedicine for his great contribution to the medical education in 2008. He was also honored as 2012-13 Who's who in the world, Who's who in Asia, 2011 Cambridge certificate for outstanding medical achievement, and 2009-2010, 2011-12 Who's who in Medicine and Healthcare.

THE TREND FOR THE INTERACTION OF FOOD INDUSTRY AND HEALTH

Chin-Kun Wang

Chung Shan Medical University, Taichung, Taiwan

Food industry in the past was the major push for industry. Traditional food industry provided food to consumers. In developed countries, such an industry was required. But for developing countries, tradition food industry is not enough to satisfy the need of the society. How to enhance the life quality after consuming food has been the major goal of current food industry. The promotion of life quality has been the future direction of current food industry. Life quality is closely associated with the health. To catch this future, the interaction and cooperation between food industry and health care is very important. The interaction between the health care and food industry was very weak in the past Taiwan. After establishing the connection, food industry can get the support of health care. The connection and interaction were encouraged by the government and was also based on the social need. About health care, hospital was the major organization unit. Good interaction between food industry and health organization could bring both benefits to the consumers. Hospitals especially medical university hospitals provide such a connection for food industry. During the cooperation, new opportunities and new products are well developed. The health organization needs to give support for the food industry. Incubation and innovation center usually play the central role for such an interaction. Of course, the newest medical care instruments are very suitable for the diagnosis and evaluation of the health care. As for the example of Chung Shan Medical University Hospital, providing 2 sets of human PET, one animal PET and nuclear instruments, they are very useful and helpful for the clinical evaluation of new food products. On the other side, the food industry also promotes the grants for basic medical researches. The trend between different fields is sometimes required by the social developments. Government plays an initial role for the cooperation and interaction. Incubation and innovation system is very good as a media for different fields.



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Jordi Salas has occupied teaching and research posts at the Faculty of Medicine in Reus (UB) since 1984. At present, he is Professor of Nutrition (Department of Biochemistry and Biotechnology) and director of the Human Nutrition Unit of the Faculty of Medicine and Health Sciences of the Rovira i Virgili University (URV). The following hospital posts should also be mentioned: Assistant Physician at the Neonatology and Reanimation Service of the Hôpital Edouard Herriot (Lyon, France, 1987); Assistant Physician at the Pediatric Gastroenterology and Nutritional Reanimation Service of the Hôpital des Enfants Malades (Paris, 1988). Since 1989, he has occupied a variety of medical posts at the Sant Joan University Hospital in Reus, and since 1991, is Head of Nutrition of the Internal Medicine Service. At present, the Nutrition Unit of which Jordi Salas is director, is recognized by: a) the URV as the research group "Diet, Nutrition and Growth", b) the Catalan Centre for Nutrition of the Institute of Catalan Studies; c) the Autonomous Government of Catalonia as a Consolidated Research Group, d) the Carlos III Health Institute in the Thematic Network RD06/0045 "Health Diet in the Primary Prevention of Chronic Diseases: the PREDIMED network" and CIBERobn 'Obesity and Nutrition'. He has directed 12 research projects financed by public bodies and 21 projects in conjunction with the pharmaceutical or food industries. He is one of the leaders of the PREDIMED clinical trial. He has published more than 220 original articles in national and international journals, as well as numerous reviews and editorials. Editor of 7 books, he has also co-authored more than 50 books. The most important lines of research are: 1) inflammation, energy metabolism, obesity and diabetes; 2) the effect of nut consumption on metabolism; 3) the effect of nutrient intake on carbohydrate and lipid metabolism, 4) the effect of the Mediterranean diet on cardiovascular diseases, and 5) the effect of diet on body weight, insulin resistance, inflammation and endothelial function.

FUNCTIONALITY OF MEDITERRANEAN DIET: THE PREDIMED STUDY

Jordi Salas-Salvadó

Human Nutrition Unit, Hospital Universitari de Sant Joan de Reus, IISPV (Institut d'Investigació Sanitària Pere Virgili), Universitat Rovira i Virgili, Reus, Spain.

CIBERobn (Centro de Investigación Biomédica en Red Fisiopatología de la Obesidad y Nutrición), Institute of Health Carlos III, Madrid, Spain.

One of the best studied healthy dietary patterns is the traditional Mediterranean diet. Mediterranean diet is characterised by a high consumption of fruits, vegetables, legumes, olive oil, nuts and whole grain; a moderate consumption of wine, dairy products and poultry; and a low consumption of red meat and processed meat, sweet beverages, creams and pastries. Epidemiologic studies have found that the adherence to the Mediterranean Diet is consistently beneficial with respect to cardiovascular risk and other metabolic diseases. Mediterranean diet has also been shown to protect from cardiovascular events in secondary prevention, and to play a protective role in insulin resistance. The PREDIMED Study is a multicenter randomised clinical trial conducted in Spain. A total of 7447 participants at high cardiovascular risk were randomly assigned to one of three diet interventions: Mediterranean Diet supplemented with extra-virgin olive oil, Mediterranean Diet supplemented with nuts, or a control diet (advice to reduce dietary fat). The median follow-up of the study was 4.8 years. The primary end-point of the PREDIMED Study was the rate of major cardiovascular events (myocardial infarction, stroke, or death from cardiovascular causes), but analysis on other secondary outcomes (diabetes, depression, all-cause mortality), and intermediate classic and emergent cardiovascular risk factors (lipid profile, glucose metabolism, blood pressure, inflammatory markers) were also performed. The effects of the PREDIMED dietary interventions on some of these factors and events will be reviewed, especially focusing on diabetes incidence and cardiovascular events.