

# Soy & Health

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## New study further supports soy protein's cholesterol lowering effect

A new study published in the Journal of Clinical Lipidology shows that soy protein lowers total cholesterol and non-HDL (non-high-density lipoprotein) cholesterol significantly more than milk protein in patients with moderately high cholesterol levels.

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This randomised, controlled, parallel arm trial evaluated the effects of an insoluble fraction of soy protein on fasting lipid profile and compared it with the effects of total milk proteins with high calcium content. It also assessed the potential contributions of increased excretion of bile acids and neutral sterols to their lipid-altering effects. Participants in the study included men and women 18 to 79 years of age with elevated cholesterol, defined as fasting LDL-cholesterol concentrations of at least 100 mg/dL and less than 200 mg/dL while receiving no lipid altering therapy. Once recruited, subjects were asked to follow a Therapeutic Lifestyle Changes diet throughout the study. Subjects that still met the inclusion criteria were then screened for their ability to lower their cholesterol in response to a bile acid binding drug. A majority of subjects responded and were then randomised to the test protein groups i.e. 25 g/d of an insoluble fraction of partially hydrolysed soy protein or 25 g/d total milk proteins.

The results showed that soy protein lowered non-HDL through an as yet undetermined mechanism which does not involve increased bile acid excretion. The soy protein that was used in this study was a relatively insoluble fraction of soy protein isolate that had been shown to lower plasma cholesterol and increase faecal bile acid excretion in animals. The levels of isoflavones in the soy protein were lower than the average commercial soy protein isolate further supporting the idea that isoflavones do not play a role in cholesterol lowering. The milk protein supplemented group also showed a modest cholesterol lowering.

KC Maki et al (Nov 2010), Journal of Clinical Lipidology. Volume 4, Issue 6, Pages 531-542.  
([http://www.lipidjournal.com/article/S1933-2874\(10\)00384-3/abstract](http://www.lipidjournal.com/article/S1933-2874(10)00384-3/abstract))



[www.healthclaims.eu](http://www.healthclaims.eu)

## Health claims

### Health Claims Europe presents its new European programme

6th International Workshop

**Nutrition & Health Claims Europe: Crisis or Opportunities?**

Tuesday, February 15, 2011

Radisson Blu Royal Hotel, Brussels, Belgium

This one-day interactive workshop is directed at R&D and Nutrition Communication staff, Legal Counsels, Marketing, Sales, and Production staff in the European Food Industry and companies interested in importing food products into the European Union. The workshop offers an excellent opportunity to meet the experts and network with colleagues.

To download the programme and register visit: <http://www.healthclaims.eu>.

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Conference THV, tel: +32 57 46 64 46, fax: +32 57 46 95 25,

website: <http://www.soyconference.com>, e-mail: [info@soyconference.com](mailto:info@soyconference.com).



## EFSA publishes more opinions on health claims

EFSA has published its latest batch of opinions on health claims including unfavourable opinions relating to article 13 health claims on soy protein and its contribution to the maintenance or achievement of a normal body weight; maintenance of normal blood cholesterol concentrations; and protection of DNA, proteins and lipids from oxidative damage. In all 3 cases, EFSA concluded that a cause and effect relationship had not been established, and with respect to the proposed 'control of cholesterol' claim, EFSA referred to its previous negative opinion on the soy industry's application for a health claim under article 14 of the EU Health Claims Regulation (1924/2006).

A number of applications for health claims relating to soy phosphatidyl choline and maintenance of normal blood cholesterol concentrations; contribution to normal fat metabolism; increase in the intestinal absorption of glutamine; faster recovery from muscle fatigue after exercise; improvement of neuromuscular function; contribution to normal cognitive function; and maintenance of normal neurological function were also unsuccessful. EFSA also considered that a cause and effect relationship had not been established for a beneficial claim for soy isoflavones on 'bone health'.

Over 800 EFSA opinions were published in this latest tranche of health claims on foods but only 75 were favourable. These relate mainly to vitamins and minerals but also claims on specific dietary fibres and blood glucose control, bowel function or weight management; fatty acid claims and brain function, vision or heart health; and claims relating to live yogurt cultures and lactose digestion. (<http://www.efsa.europa.eu/en/ndatopics/topic/nutrition.htm>)

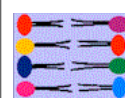
## Research into botanical estrogens receives NIH grant

An ongoing research initiative into the health effects of botanical estrogens will get an \$8 million grant from the National Institutes of Health. The Botanical Research Center, based at the University of Illinois, will draw on the expertise of a multidisciplinary team of researchers to address the many unknowns associated with the use of botanical estrogens. These plants and plant-based compounds are often marketed as aids to prevent cancer, promote healthy aging or relieve menopausal symptoms. Researchers from Illinois, the University of Mississippi, Oregon State University and the FDA's National Center for Toxicological Research will contribute to the five-year effort. This is the second \$8 million grant from the NIH to Illinois to conduct research into the health effects of botanical estrogens. The first five-year initiative focused on soy isoflavones that previous studies indicated had potential as anti-cancer and cholesterol-lowering agents. That grant yielded studies that showed that the positive or negative health consequences of exposure to soy isoflavones depend on the timing of the exposure (whether it occurs in early, mid, or late life), tissue type (breast or brain, for example), and dose. The new grant supports three projects which will explore whether and how phytoestrogens from soy, licorice root, dong quai and wild yam affect various tissues, influence gene expression or other cellular processes, increase or decrease the growth and metastasis of breast cancer tumours, influence bone loss or alter the rate of cognitive decline in aging.

(<http://www.aces.uiuc.edu/news/stories/news5446.html>)

## History of soybeans & soyfoods in South Asia & Indian subcontinent

The Soyinfo Center has published a new book entitled 'History of soybeans and soyfoods in south Asia and Indian Subcontinent 1656 - 2010'. Compiled by William Shurtleff and Akiko Aoyagi over a period of 34 years the book covers Afghanistan, Bangladesh, Bhutan, India, Nepal, Sikkim and Sri Lanka and is an attempt to document the history of soy in this region. The book lists all known documents, original Soyinfo Center interviews and overviews never before published, and commercial products in chronological order. A complete subject/geographic index is included. No printed edition is available but this online book contains a powerful built-in search engine for easy navigation (<http://www.soyinfocenter.com/>)



### International Lecithin and Phospholipid Society

**10th ILPS PHOSPHOLIPID CONGRESS,  
16-18 September 2011  
Rotterdam, the Netherlands**

The congress is organised as satellite Congress prior to the 9th Euro Fed Lipid Congress, 18 -21 September 2011 in Rotterdam. AOCS – European Section is sponsoring co-organiser. Programme and registration form will become available in the course of 2011 on

(<http://www.ilps.org/10th%20Congress.htm>)

For further information please contact the ILPS Executive Director at [ilps@leciopro.nl](mailto:ilps@leciopro.nl)



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## Report on endocrine active substances in food

EFSA's Scientific Committee has published a first report on endocrine active substances in food. This topic is of interest to several EFSA Units and Panels and examples of relevant topics include: risk assessment of bisphenol A; the hazard assessment of isoflavones; and the implementation of the new regulation on plant protection products. Recently there have been calls for the development of a common approach within EFSA towards endocrine active substances resulting in the setting up of a task force to identify trends and developments in the assessment of the health risks and risk communication issues.

The report identifies the need for a harmonised approach to identify endocrine active substances and assess their effects; better risk communication and the need to develop a risk assessment strategy taking into account the age- and gender-related differences and possible combined actions of endocrine active substances. An EFSA working group of Panel experts and national experts is proposed to advise in prioritising the work.

The report also states that from a risk communications perspective, the concept of 'endocrine active substances' is not well known and that public debate has been largely shaped by the negative connotations associated with the term 'endocrine disrupters'. The task force suggests that research on public perception is required whilst taking into account perception regarding 'natural' constituents of foods which have endocrine effects and which may be promoted for their health effects. (<http://www.efsa.europa.eu/en/scdocs/scdoc/1932.htm>)



## Soyatech SPINS report soyfoods sales down first time in decade.

According to 'Soyfoods: The U.S. Market 2010', a report released by SPINS, Inc. and Soyatech, LLC, retail sales of soy-food products declined in 2009 to \$4.5 billion for the first time in a decade. In examining soyfoods sales and industry trends during 2009, the report points out that the US market for soyfoods has felt the effects of the overall economic downturn. The study's authors note that consumer awareness of the health benefits associated with soy and its expanded presence in multiple distribution channels are leading factors in soyfoods' continued success. The report cites data which confirm that the conventional supermarkets and natural products retailers took the biggest hit in sales losses. Losses of 2.3% to 4.0% in supermarkets and natural product stores surpassed the 'other channels' category of retail outlets for soyfoods, including Wal-Mart, club stores and foodservice operations, where sales fell 1.3%. The 6.5% decline of soymilk beverages sales, the leading soyfoods category, significantly affected sales losses, while other leading categories such as meat alternatives, energy bars and meal replacements maintained positive sales growth. Of the top 10 soyfoods categories, soy-based condiments achieved the strongest growth - up 5.4% to \$136 million. ([http://www.spins.com/reports/Purchase\\_Reports.php](http://www.spins.com/reports/Purchase_Reports.php))

## FDA consults on phytosterol health claim

The Food and Drug Administration (FDA) is proposing to amend the regulation authorising a health claim on the relationship between plant sterol esters and plant stanol esters and reduced risk of coronary heart disease (CHD) for use on food labels and in food labelling. FDA is taking this action based on evidence previously considered by the agency, and FDA's own review of data on esterified and nonesterified plant sterols and stanols (collectively, phytosterols) published since the agency first authorised the health claim. FDA is also taking these actions, in part, in response to a health claim petition submitted by Unilever United States, Inc. The proposal would amend the authorised use of the claim by modifying the nature of the substances that may be the subject of the claim for conventional foods to include nonesterified or free phytosterols; by expanding the types of foods that may bear the claim to include a broader range of foods; by modifying the daily dietary intake of the substance specified in the claim as necessary for the claimed benefit; by adjusting the minimum amount of the substance required for a food to bear the claim; and by making other minor changes. Written or electronic comments should be submitted by February 22, 2011. (<http://www.regulations.gov/#!documentDetail;D=FDA-2000-P-0102-0006>)





## The Alpro Company

Alpro is the European pioneer in the development of mainstream soya-based food and drinks. Our wholesome food products are produced in four European countries with the same care and with the same respect. For over 25 years, Alpro has been championing a healthier, more sustainable way of producing and selling delicious products that conserve the unique nutritional value of soya beans. Today, the company employs over 760 people.

## The Alpro Products

A healthy series of Alpro soya and Provamel drinks, desserts, alternatives to yoghurt and tofu range is available in department stores and organic food shops in Europe.

Like consumers across Europe, Alpro believes there is room for tasty, wholesome products that respect both the consumer's right to healthy food and a sustainable approach to developing and selling that food. In this day and age, it's not just what we sell that's important but also how we produce it.

## The Alpro Innovation and Expertise

Based on in-depth consumer understanding, our R&D department works on the development of new products and on continuously upgrading our existing products, in order to meet the demand by health conscious consumers for products that taste delicious.

The Science & Nutrition department plays a key-role in providing information to the customer concerning product composition, nutritional value etc. The department closely follows all research on soy and its components in order to communicate the facts to medical groups and consumers.

## Sustainable development

Alpro has a philosophy about food that travels deep into every aspect of our business. Not only do we take into account the impact of food on our health, we also consider our lifestyle and indeed our environment.

[www.alprosoya.com](http://www.alprosoya.com)

Alpro Headquarters, Kortrijksesteenweg 1093C, 9051 Gent - Belgium, tel +32 9 260 22 11



# conference highlights



## 5

About 150 delegates attended the **9th International Symposium on the Role of Soy in Health Promotion and Chronic Disease Prevention** held in Washington, DC, USA from 16-19 October 2010. This international symposium has become a key scientific meeting for researchers investigating the health effects of soyfoods and soyfood components. Data was presented confirming the health benefits of soy in a variety of well-researched areas as well exciting developments on some potential new benefits.



### Genetic Disease

*Grzegorz Wegrzyn (University of Gdansk, Poland)* presented a paper suggesting that genistein may help patients with Mucopolysaccharidoses (MPS) - an inherited metabolic disorder affecting children. The disease results in degradation of glycosaminoglycans (GAGs) in lysosomes and is chronic, progressive and potentially life threatening. Most patients typically have a 10-20 year life span. Results from animal models and a pilot RCT suggest improvements in patients receiving at least 10mg genistein as an extract.

### Skin ageing

Results of a double blind placebo controlled study evaluating the effect of a soy-based drink (containing 100mg isoflavones) on skin ageing in 101 healthy non smoking postmenopausal women over 14 weeks were presented by *Robin van den Berg (Unilever Discover R&D Vlaardingen, The Netherlands)*. The results showed a significant reduction in wrinkle depth and collagen production. The data has been submitted to EFSA in support of an article 14.5 health claim.

### Obesity

*Elvira De Meija (University of Illinois, USA)* compared the effect of consuming a low glycinin soymilk (LGS) with conventional soymilk (S) and cows' milk (M) on body fat accumulation and biomarkers of oxidative stress and inflammation in overweight men. No significant difference between the groups was found with respect to body weight, waist-hip ratio, BMI, lean mass, serum lipids, plasma leptin, C reactive protein and fatty acid synthase but there was a small significant decrease in lipid accumulation in the LGS group suggesting that it may be useful to include LGS in meals designed to improve the health of overweight individuals. A study in rats presented by *Michelle Murphy (Monelle Chemical Senses Centre, Philadelphia, USA)* suggested that soy may have anti-obesity effects as it significantly reduced body weight compared to the controls and appeared to increase heat production and activity.

### Breast cancer

Two epidemiological studies offer reassurance that soyfoods are not only safe but may be beneficial for breast cancer patients and high risk women. *Xiao-Ou Shu (Vanderbilt University, USA)* presented data from the Shanghai Breast Cancer Survival Study (5,042 female breast cancer survivors) which showed that soyfood consumption after breast cancer is safe and may actually improve survival rates. Another study by *Xiinmei Kang (Department of Oncology, Cancer Hospital of Harbin Medical University, China)* on 524 post-operative breast cancer patients found that high dietary intake of soy isoflavones was associated with reduced risks of recurrence in postmenopausal breast cancer patients with ER+/PR+ disease who were receiving anastrozole as endocrine therapy.

### Non-alcoholic fatty liver disease

*Joel Lavine (Columbia College of Physicians and Surgeons, New York, USA)* explained that non-alcoholic fatty liver disease (NAFLD) is the leading cause of chronic liver disease in children and adolescents in the US and, with childhood obesity on the increase everywhere in the world, it is fast becoming a global problem. Results from RCTs to be published shortly indicate a potential role for Vitamin E in treating NAFLD. *Thomas Badger (Arkansas Children's Nutrition Center, Arkansas, USA)* presented data on animal studies (rats, mice and pigs) that suggest that soy protein may have a hepatoprotective effect by partially ameliorating high fat diet induced effects and increasing insulin sensitivity.

### Bone health

Further bone studies provided some confirmation for modest beneficial effects of soy isoflavones on bone health. *Francesco Squadrito (University of Messina, Italy)* presented the results of a study using a Fracture Risk Assessment Tool (FRAX) - which calculates the ten year probability of a major osteoporotic fracture and/or hip fracture. The study concluded that after 2 years, 54mg of genistein aglycone significantly reduced the risk of fractures in a group of osteopenic postmenopausal women. *Iris Kunz (DSM Nutritional Products, Basel, Switzerland)* showed results from a pilot RCT investigating the effect of synthetic genistein (30mg), in combination with PUFA's and Vitamins K1, D3 and 500mg calcium, on bone health in early postmenopausal women compared with a placebo and 500mg calcium. After 6 months the study found a significant improvement in bone mineral density (BMD) at lumbar spine and femoral neck compared with the placebo with no adverse effects. *Lee Alekel (Iowa State University, USA)* provided new data to confirm that time since last menstrual period is important. High doses of soy isoflavones (80 and 120mg/d) for a 3 year period were modestly beneficial for midshaft femur volumetric BMD as time since last menstrual period increased and for midshaft femur strength-strain index as bone turnover increased.

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## Coronary Vascular Disease

The most recent meta-analysis by *James Anderson (University of Kentucky, USA)* affirms the beneficial effects of soy protein on serum cholesterol levels suggesting that 15-25gm of soy protein per day may reduce the risk of CVD by approximately 15%. Other studies are in line with these findings including studies in which cholesterol measurement is not a primary outcome. In addition, presentations from *David Jenkins (University of Toronto, Canada)* and *CE Berryman (Pennsylvania State University, USA)* provided support for soy protein's intrinsic cholesterol lowering ability and the additional contribution to LDL cholesterol lowering because of its food displacement effect.

## Hot Flashes

Encouraging results from a systematic review and meta-analysis of 18 placebo-controlled clinical studies were presented by *Mindy Kurzer (University of Minnesota, USA)*. Soybean isoflavone supplements were found to significantly reduce both the frequency and severity of hot flashes in postmenopausal women by about 20% more than from a placebo. When the placebo effect is included the reduction is closer to 50% improvement. In a RCT of 84 postmenopausal women reporting at least 40 hot flashes per week, *James Elliott (DSM Nutritional Products Inc, New Jersey, USA)* showed that a single 30mg dose of genistein aglycone reduced hot flash frequency and duration.

## Sports Nutrition

The quality and timing of dietary protein is important in sports nutrition. In a review of studies *Catherine Jankowski, University of Colorado Anschutz Medical Campus, Aurora, Colorado, USA* suggested that results are equivocal as to whether soy and milk differentially stimulate skeletal muscle anabolism. In a presentation by *Blake Rasmussen (University of Texas Medical Branch, Galveston, Texas, USA)* it was suggested that a blend of high quality soy and milk proteins may be optimal for athletes to consumer following training.

## Thyroid Function

*Dr Stephen Atkin (Hull Medical School, University of Hull, UK)* presented data from a UK study on thyroid function in patients with subclinical hypothyroidism. The study found a 3 fold increased risk of developing hypothyroidism with dietary supplementation of 16mg of soy isoflavones especially in females with subclinical hypothyroidism. However, at this dose there are also benefits as insulin resistance, hsCRP and blood pressure were reduced. Similar but surprising results were obtained in a follow-up study raising questions about patient iodine deficiency.

## Equol

*Belinda Jenks (Pharmavite LLC, USA)* provided data to support the safety and effectiveness of a natural S-Equol (developed by Pharmavite Inc, USA) in menopausal healthcare (hot flashes and bone health). *Nadine Brown (Cincinnati Children's Hospital Medical Centre, Cincinnati, USA)* presented research investigating the effect of equol enantiomers on breast cancer in rats. Her studies suggest that brief exposure to S-equol in the neonatal and prepubertal periods does not provide a chemopreventive effect against mammary tumours in later life - but neither did it increase tumour formation.

It has been generally accepted that 30% of western populations are equol producers and that the equol producing phenotype is stable over time. However, in his presentation, *Adrian Franke (Cancer Research Center of Hawaii, Honolulu, USA)* suggested that, in addition to equol producers and non-producers, there are also equol 'crossers' – both negative and positive. The role of bacteria, antibiotics and other foods and drinks may be important.

*Kenneth Setchell (Cincinnati Children's Hospital Medical Centre, Cincinnati, USA)* and co-workers studied ageing hens - used to represent menopausal woman. The study showed that dietary supplementation with isoflavone aglycones, compared with glucosides, improved egg laying performance and showed significantly higher egg production with eggs having a 30% lower cholesterol content. This confirms the hypothesis that alycones are biologically more active than glucosides.

## Other topics

Other topics included: soy saponins; risk/benefits of GM soybeans; isoflavone content of the US diet; effects of genistein on insulin resistance; the soy and breast cancer controversy; differences between human and rodent metabolism; a summary of evidence provided to EFSA on the soy heart health claim; nipple aspirate fluid analysis and breast cancer; effects of an equol supplement on BMD in postmenopausal Japanese women and on obesity and metabolic syndrome in Japanese women; effect of genistein-containing diets on lens opacity; role of soy isoflavones in food allergy protection.

## Heather Paine, Editor, Soy & Health

The Isoflavone Research Initiative has also published a report of the Washington symposium which can be found at <http://www.isoflavon-forschung.de/en/home/news/230-washington-news.html>. The official proceedings from the symposium will be published in a future issue of the Journal of Nutrition.





# 7

## Kerry launches new line of organic natural soy protein isolates

Kerry Ingredients & Flavours has developed a brand new line of certified organic and all natural Soy Protein Isolates (SPI) for natural and organic foods. As a result of a breakthrough in expeller press technology, Kerry has designed an extensive range of SPI products, each designed to work in specific food applications, including: dry blended beverages, ready-to-drink beverages, health and nutrition bars, cereals, snacks and much more. (<http://www.kerry.com>)

## Nasoya Launches Online Tofu Resource, Tofu U

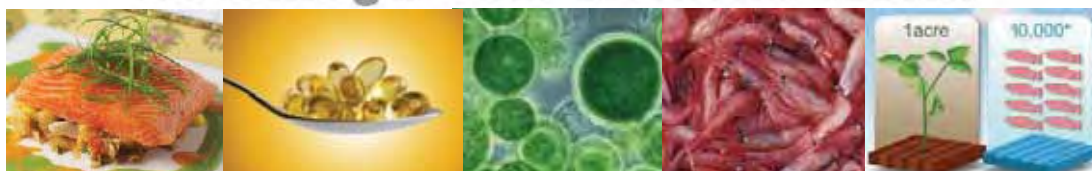
Nasoya has recently released USA's first line of tofu with added nutrients. TofuPlus is fortified to provide 20% of the daily nutritional requirements of the vital nutrients that can be harder to get when meat is less prevalent in the diet, including Vitamins B-2, B-6, B-12, Zinc, D-2 and Calcium. TofuPlus is also USDA Certified Organic, low in saturated fat, and a good source of iron (<http://www.Nasoya.com>). Nasoya has also introduced Nasoya Tofu U, a 'virtual campus' on its web page to educate consumers about all things tofu. As one of the world's oldest health foods, tofu intrigues cooks with its diverse possibilities and nutritional benefits. However, while many enjoy eating tofu outside the home, Nasoya consumer research has found that the majority still struggle to prepare the ingredient in their own kitchens. With Tofu U to the rescue, this versatile protein will be demystified and tofu connoisseurs and novices alike can 'get schooled' with a robust collection of how-to video tips, simple and healthy recipes, tofu games and more. ([www.Nasoya.com/Tofu-U](http://www.Nasoya.com/Tofu-U))

## Solae introduces new hydrolysed protein

Solae has launched a new hydrolysed soy protein product - HVF (hydrolysed vegetable flavouring) 56 - as a solution for US meat manufacturers looking to improve cooking yields through increased penetration rates and inclusion levels while maintaining good flavour and texture. HVF 56 is recommended for whole muscle meat applications such as hams, roast beef, corned beef, turkey breast, bone-in poultry and more. HVF 56 is characterised by its neutral and clean flavour. It is highly soluble, allowing it to penetrate deeper into whole muscle; therefore, helping to retain juiciness and to increase yields in finished products while maintaining original appearance. Solae's HVF offerings - HVF 39, HVF 50 and HVF 53 - can help meat manufacturers to lower production costs and maintain or improve product quality over a wide range of products. HVF 56 is Solae's latest in this product category. In addition to increasing cooking yield, reducing formula costs, and improving juiciness, Solae's HVF products also increase heat and re-heat tolerance. (<http://www.solae.com>)

## GLOBAL SUMMIT ON NUTRITION, HEALTH AND HUMAN BEHAVIOUR

### LC-Omega-3 for a Better World



### Kempinski Hotel Duke's Palace - Bruges, Belgium, 3-4 March 2011

This one-day interactive workshop is directed at R&D and Communication staff, Legal Councils, Marketing and Sales, and The world foremost authorities in neuroscience warn that the new epidemic of mental illness and brain dysfunction is exponentially broadening due to inadequate long chain fatty acid intake. This leads to a cost to society higher than the cost of the worldwide obesity issue.

*The Global Summit on Nutrition, Health and Human Behaviour will bring high-level industry people, top scientific research and government and policy makers together with the objective of developing new product strategies and policies for meeting lc-omega-3 requirements in a sustainable way.*

<http://www.omega3summit.org> - [info@omega3summit.org](mailto:info@omega3summit.org)

**GOED** OMEGA-3

MARTEK  
life enriched.



## 9 February 2011

Pulse Ingredients for Healthy People and a Healthy Planet, Hyatt Regency, Toronto, Canada.  
Visit: <http://www.pulsecanada.com/pulse-ingredient-expo>.

## 15 February 2011

6th International Workshop Nutrition & Health Claims Europe: Crisis or Opportunities? Radisson Blu Royal Hotel, Brussels, Belgium. Visit: <http://www.healthclaims.eu>

## 1–2 March 2011

Food Technology and Innovation Forum, Brussels, Belgium. Visit: <http://www.foodinnovate.com>.

## 3–4 March 2011

Global Summit on Nutrition Health and Human Behaviour: LC Omega-3 for a Better World, Kempinski Hotel Duke's Palace - Bruges, Belgium. Visit: <http://www.omega3summit.org>.

## 9–10 March 2011

Soyfoods 2011: Plant Proteins & Oils for Better Nutrition, Anaheim, CA, USA. Visit: <http://events.soyatech.com>.

## 10–13 March 2011

Natural Products West 2011, Anaheim, CA, USA. Visit: <http://www.expowest.com/ew11/public/enter.aspx>.

## 13–18 March 2011

15th Annual Practical Short Course on Snack Foods Processing (Extruded Snacks and Tortilla Chips), Texas A&M University, USA. Visit: [www.tamu.edu/extrusion](http://www.tamu.edu/extrusion).

## 28–30 March 2011

French Society for the Study of Lipids - Journées Chevreul 2011: Lipids & Brain, Paris, France. Visit: <http://www.afecg.org>.

## 1–4 May 2011

102nd AOCS Annual Meeting, Cincinnati, Ohio, USA. Visit: <http://annualmeeting.aocs.org/index.cfm>.

## 2–4 May 2011

Global Aginvesting 2011, New York, USA. Visit: <http://events.soyatech.com>.

## 11–15 June 2011

Institute of Food Technologists Annual Meeting and Food Expo, New Orleans, LA, USA.  
Visit: <http://www.am-fe.ift.org/cms/?pid=1000390>.

## 15–17 June 2011

5th Food Proteins Course combined with IFT, New Orleans, USA. Visit: <http://www.bridge2food.com/fpc2011.asp>.

## 21–23 June 2011

Oils and Fats Market Update 2011, Hilton Izmir, Turkey. Visit: <http://www.aocs.org/meetings>.

## 10–13 July 2011

5th European Symposium on Plant Lipids, Gdansk, Poland.  
Visit: <http://www.eurofedlipid.org/meetings/gdansk2011/index.htm>

## 9–10 August 2011

Health Ingredients South America, Sao Paulo, Brazil. Visit: <http://hi-events.com.br/en/index.php>.

## 16–18 September 2011

Pre- Euro Fed Lipid Congress Event: 10th ILPA Phospholipid Congress, Rotterdam, The Netherlands.  
Visit: <http://www.ilps.org/10th%20Congress.htm>.

## 18–21 September 2011

9th Euro Fed Lipid Congress: Oils, Fats and Lipids for a Healthy and Sustainable World, Rotterdam, The Netherlands.  
Visit: <http://www.eurofedlipid.org/meetings/rotterdam/index.htm>.