International Conference on the Bioscience of Lipids

Editor
MARZIA GALLI KIENLE
Dpt. of Experimental Medicine
Via Cadore 48
20052 Monza – Italy

NEWSLETTER 2007

THE 47TH ICBL
Pécs, Hungary, 2006 September 5-10

Pécs, the Roman Sopianae

The 47th ICBL took place for the first time in Hungary on September 2006. Since the fall of the iron curtain in 1989, Hungary has rapidly developed to enter the European Union on May 2004. In the meantime, a respected school of Lipidologists originated by Professor Tibor Farkas was imperative, and the ICBL Steering Committee entrusted the chairmanship of the 47th ICBL to one of the Tibor Farkas's pupil, Professor Laszlo Vigh.

Pécs, the deep-south Hungarian city, capital of the Baranya county, with a reputation for a Mediterranean climate was chosen to host the Conference. The former Roman settlement called Sopianae, following the Celts, was already famous as a wine-producing center. As a symbol of international open culture, Pécs has been selected to be a European Capital of Culture in 2010, with Essen and Istanbul. It is just located in between the German and Turkish cities (46°N/18°E versus 51°N/7°E & 41°N/29°E) on almost a straight line (an arc of a circle, of course) of 2000 km, to make a link between two cultures with Essen, the industrial city of the Ruhr area which was appointed fifty years ago to be the seat of a Roman-Catholic diocese, and Istanbul, the earliest first Christian capital which became the capital of the Ottoman Empire for the second half of the last millenary. Indeed, the emblem of the city of Pécs is Széchenyi Square showing the former Pasha Ghazi Kassim's mosque, now a Christian church.

Pécs is also the place of the first Hungarian university founded by Louis the Great in 1367. This is enough to justify the choice of Pécs for the first ICBL in Hungary!

The opening of the Conference in Hotel Palatinus, an art-deco building located in the historic city of Pécs right in a lively pedestrian street, was addressed as a tribute to Tibor Farkas with vibrating speeches from Laszlo Vigh the Chairman and Fritz Spener the ICBL past-President. John Halver, a former Farkas' Colleague at the US National Academy of Sciences, explained how creative and brave was the research activity of Tibor Farkas when he worked at the time of the iron curtain. This tribute was also dedicated to the widow Mrs Farkas, present in the audience.

A musical interlude closed this emotional time with dancers, the girls exhibiting magnificent dresses, performing traditional dances entailed by a quartet of cords.

Then, the new President Michel Lagarde delivered his welcome address, expressing his acknowledgements to the former President for his valuable action to promote ICBL and to have secured future conferences for the next four years, as well as to Laszlo Vigh and his team for having prepared a wonderful scientific and social program. This was followed by the annual Laurens van Deenen Lecture, given by Ben de Kruijff in a masterful dissertation on the intimacy between specific lipids and proteins in biological membranes. Then all participants were convened to the welcome reception at the Hotel Patria at the border of the city centre, which gave a nice opportunity to walk in the fresh air of an evening of the summer end.

The next day was jointly organized with the European Lipidomics Initiative (ELIfe) to promote sessions on lipidomics approaches *per se* and membrane domains with the consideration that ICBL, with its strong roots in Europe, should naturally be the place where ELIfe should meet the future actors in the lipidomics field. This day ended the ELIfe meeting while started ICBL.

This was followed by a lively reception at the City Hall located close to the top of the hill that which each climbed and achieved a little made breathless.

In the second full day of ICBL, the first two lectures were dedicated to the memory of Tibor Farkas followed by a wide session on "Lipids and Stress" and a short hot topics session, and the evening was devoted to a memorable excursion to the wine country with a long and gastronomic stop in Villany, located deep south of the Baranya County, close to Croatia.

We were hosted in a big cellar, next to numerous barrels, where many rustic tables had been drawn up to welcome us. A typical Hungarian menu was served, accompanied with various types of wines offered to the tasting in warm musical atmosphere. Indeed, a small orchestra of cords including an excellent violinist enchanted the totality of the meal. When the atmosphere was warm enough, our Colleague Gábor Tigyi, a native Hungarian who works at the University of Tennessee in Memphis, introduced a song recital intoned spontaneously by groups of Colleagues on national bases. A group of French began with a song that was preferable that the non French speakers do not understand, and almost all the represented countries used alternately this privilege. Of course the US citizens did not easily decide on their national singing, so that Art Spector had to only intone a song of Ohio considered as the emblem of the Union. This was a big moment of conviviality for this well sprayed meal.

Two thirds of the next day was devoted to gene regulation by lipids followed by a small session on a very open question: "What are healthy lipids?" Then, participants at the International Lecithin and Phospholipid Society (ILPS) joined the ICBLians to open the next jointly organized day which was dedicated to the metabolism and function of lipids in the brain, and to sphingolipids.

This last ICBL day (Saturday) ended with an introduction to the 48th ICBL to be held in Turku, Finland, given by the Chairman of this future Conference, Professor Peter Slotte, and with the Conference Dinner at the Hotel Patria where we first met for the welcome reception.

Secretariat steering committee: Nutrition Foundation of Italy
V.le Tunisia 38, 20124 Milan, Italy.
Tel. +39.02.76399532 - Fax +39.02.76003514; e-mail: info.nfi@tin.it
ICBL homepage: http://www.icbl.unibe.ch/

The event started with the prize-awarding of posters and best oral communication prize (see Scientific Report for details). The Chairman of the poster award, Professor Guenther Daum, first explained how the selection was made, and confided to the audience his point of view on the best way of preparing a good poster by taking example on the preparation of goulash ! This typical Hungarian dish requires at first excellent ingredients, mixed with love and cooked for a long time so that all the aromas express themselves. The display to "consumers" remains then a major stage of the global quality of the product. The three Awardees were then successively called upon by Guenther Daum on behalf of the ICBL Poster Award Jury for remittance of their prize. They were from Austria (University of Graz), France (University of Burgundy) and Sweden (Göteborg University).

The best oral communication delivered by a young researcher is a special award sponsored by Elsevier. It was selected by another jury and remitted by Professors William Dowhan and Fritz Spener, the North America and European Executive Editors of the BBA section on Molecular and Cellular Biology of Lipids. The Awardee was a young PhD student of the University of Wisconsin in Madison, USA.

An excellent self-served dinner with an incredible variety of food followed the prize ceremony, accompanied by live music delivered by a quite dynamic orchestra.

A short interlude took place for the traditional toast dedicated to the "Spirit of ICBL", the President explaining his views on that statement. It is something that each ICBLian feels rather than he explains. It recovers from the personal perception of a happy association between science and culture promoted by ICBL, a place where culture can meet science.

The evening ended by dancing in a relaxed and friendly atmosphere culminating with a large participation of the attendants in a sirtaki driven by our Colleague Alexandros Tselepis and his wife.

The participants then scattered, each wishing the other all the best, waiting to see each other again at the next ICBL in Turku, Finland.

Hope to see you all in Turku.
With my very best wishes.

Michel Lagarde
President of ICBL

ICBL 2007 Poster Awards and BBA Young Speakers Award or The Hungarian Goulash

At the occasion of the ICBL Conference Dinner which took place in the Hotel Pátria, Günther Daum, the newly elected Vice-President (President Elect) of the ICBL and Chairman of the Poster Award and Young Speakers Award Committees provided his view of a successful poster preparation and presentation. He compared the prerequisites for a good scientific performance with cooking a spicy Hungarian goulash. A good stove and a pan (the laboratory) as well as a gifted cook (the enthusiastic student) are the first step to the success. The choice of appropriate ingredients such a good piece of meat (the subject of science), fat (of course an important part of ICBL related research), onions, garlic and tomatoes (the focus of the investigations), as well as paprika (some splendid ideas), salt and spices (inspiration) would be other important requirements. Endurance and

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patience, sometimes some tears (be aware of the onions!) complete the efforts. Finally, the product of the work, which might be either the goulash or the poster, can be shared with friends and colleagues who will have to digest what has been presented.

Having all these aspects in mind, the ICBL 2007 Poster Award Jury consisting of Philippe Bougnoux, Tours, France; John Harwood, Cardiff, UK; Ibolya Horváth, Szeged, Hungary; Hee-Yong Kim, Bethesda, Rockville, Maryland, USA, Fritz Spener, Graz, Austria; Jean Vance, Edmonton, Canada; and Günther Daum (Chairman), Graz, Austria, had to select the three winners of the Awards from 106 abstracts which had been submitted. In a unanimous decision the Awards went to the following contributors;

K. Natter, J. Petschnigg and S.D. Kohlwein
Institute of Molecular Biosciences, University Graz, Austria
Hydrophobicity sorts proteins to the lipid droplet

Lipid droplets (LD) are present in most eukaryotic cells and play a central role in fat storage and mobilization. In the yeast *S. cerevisiae* about 30 different protein species localize to LD. All characterized LD enzymes are involved in lipid metabolism; however, their specific role on LD remains obscure. For some enzymes, targeting to LD may serve a regulatory function, separating the proteins from their ER-resident substrates. The signals directing proteins to LD are still unknown. Dual localization to the ER and LD suggests an ambiguous sorting mechanism leading to a dynamic distribution of proteins between these two compartments. Two yeast proteins, Faa3p (plasma membrane) and Faa4p (lipid droplet), share extensive sequence homology and almost identical hydropathy profiles. By exchanging sequences between these proteins, no distinct targeting signals but rather extended regions were identified to be responsible for LD association. Based on these results and on statistical amino acid distribution of known LD proteins, 65 candidate proteins of unknown function were selected, tagged with GFP and localized. In this approach several novel LD and ER proteins were identified. The authors' results suggest that the distribution of proteins between ER and LD relies on the overall hydrophobic character of the protein surface, rather than on a distinct signal sequence. Thus, targeting of proteins to LD may rely on a novel mechanism, termed "hydrophobicity-based protein sorting".

J. Bellenger, F. Guinot, S. Bellenger and M. Narce
UPRES Lipides et Nutrition, University of Burgundy, Dijon, France
Polyunsaturated fatty acid metabolism related to type-1 diabetes in n-3 fatty acid desaturase gene transferred mice

Type-1 diabetes (IDDM) impairs polyunsaturated fatty acid (PUFAs) and prostanoid biosynthesis. Thus, desaturase activities - limiting steps of PUFAs biosynthesis – are impaired after IDDM induction. It is now established that a balanced n 6/n 3 ratio of the body lipids also plays an important role in the prevention and treatment of many clinical problems. Dietary oils rich in n-6 and n-3 PUFAs can prevent type-1 diabetes by enhancing antioxidant status and suppressing cytokine production. No study has already been done on the effects of an n-6/n-3 balance on IDDM prevention. The use of n-3 fatty acid desaturase gene transferred mice (*fat-1* transgenic mice), converting endogenously n 6 PUFAs to the corresponding n 3 PUFAs, seems to be such a desirable animal model that provide therapeutic and disease-preventive effects of n 3 fatty acids, without supplements or dietary manipulation.

The objectives of this study were to clarify the roles and involvements of n-3 PUFAs and enzymes involved in their metabolism as well, in chemically-induced type-1 diabetes in *fat-1* transgenic

mice. Male 12 week-old transgenic and wild type mice (6 per group) were given daily intraperitoneal injection of streptozotocine, 40 mg/kg/day or citrate buffer 50 mM pH4.5 (control group) for 5 consecutive days. Fatty acid composition and microsomal delta-6 desaturase activities were studied 4 weeks after the last injection. The levels of n-6 PUFAs were remarkably lower whereas n-3 fatty acids were abundant in the transgenic tissues compared with the wild type mice tissue in which there is little n-3 fatty acid. Microsomal delta-6 desaturase activities were significantly lower in transgenic animals. Hyperglycemia, induced by streptozotocine, was observed in wild type animals when not in transgenic one (275 versus 150 mg/dl respectively). These results suggested that endogenous n-3 fatty acid enrichment can abrogate chemically induced diabetes in fat-1 transgenic animals. Such investigations allowed better understandings of the roles and involvements of n-3 PUFAs and enzymes of their metabolism as well in IDDM pathology, without using dietary manipulations. The *fat-1* transgenic mouse model represents an innovative approach of the problem.

M.X. Andersson, M. Goksör and A.S. Sandelius

Göteborg University, Göteborg, Sweden; Department of Plant and Environmental Sciences; and Department of Physics

Optical imaging and manipulation demonstrate zones of physical attachment between membranes.

By using optical imaging and manipulation, the authors presented the first dynamic demonstration of actual contact zones between endoplasmic reticulum (ER) and another membrane. Leaf cells from *Arabidopsis thaliana,* transformed with a fluorescent ER lumen protein (Matsushima et al. 2002), were observed by confocal laser beam microscopy. The ER network was evident, with ER branch endpoints apparently localized at chloroplast surfaces. In isolated chloroplasts, GFP-fluorescing spots were visible on the chloroplast surface. The latter result not only reflects that the association between the ER and the chloroplast surface is strong enough to survive the chloroplast isolation procedure, but also demonstrates that the attached ER had been part of the ER continuum of the cell. After ablation of a leaf cell using a laser scalpel, the cell content was released and ER fragments could be stretched out by optical tweezers (for methodology, see Goksör et al. 2003). The association held up against an applied force of 400 pN, which suggests a protein-protein interaction. In conclusion, it was demonstrated for the first time that a membrane clearly of ER origin is at discrete areas associated with another membrane, here the chloroplast outer envelope membrane.

The presenting authors, whose names are underlined in the synopses of their presentations shown above, received certificates and 500,- Euros, each. The Awards were donated by the Organizing Committee of the ICBL 2007 and presented by the Chairman of this Conference, Laszlo Vigh.

To support and appreciate the efforts of young scientists, ICBL had decided to offer for the first time a Young Speaker Award to scientists below the age of 40 for short oral presentations at this meeting. Biochimica et Biophysica Acta (BBA), represented at the ICBL 2007 by Fritz Spener and William Dowhan, had agreed to be the sponsor of the ICBL Young Speaker Award. The Young Speaker Award Jury consisting of Marzia Galli Kienle, Milano, Italy, Michel Lagarde, Villeurbanne, France; Fritz Spener, Graz, Austria; Laszlo Vigh, Szeged, Hungary; and Günther Daum (Chairman), Graz, Austria, had to decide among seven short oral presentations which qualified for this Award. Although all presentations were of excellent quality the Award was unanimously offered to Harini Sampath for the following contribution:

H. Sampath, M. Miyazaki and J.M. Ntambi

Department of Nutritional Sciences, University of Wisconsin-Madison, Madison, USA; and Department of Biochemistry, University of Wisconsin-Madison, Madison, USA.

Stearoyl CoA desaturase-1 mediates the pro-lipogenic effects of dietary saturated fat

Fatty liver disease or hepatic steatosis is brought on by chronic over-nutrition and increases the risk for secondary conditions such as insulin resistance. Mice with a targeted mutation in the enzyme stearoyl-CoA desaturase-1 (SCD1), which catalyzes the conversion of stearic acid into oleic acid, are lean and protected from diet-induced obesity and insulin resistance. This leads us to hypothesize that oleate, the monounsaturated fatty acid product of SCD1, plays a direct role in the development of diet-induced hepatic steatosis.

8-week old male wild-type (WT) and SCD1-/- mice were fed 20% high-fat diets containing either tristearin or triolein for 7 days. Compared to tristearin, triolein feeding results in significantly greater body weight and white adipose tissue accumulation, as well as 1.7- and 4-fold increases in hepatic triglyceride in WT and SCD1-/- mice, respectively. Compared to tristearin, triolein feeding induces expression of lipogenic genes in SCD1-/- but not WT mice. Conversely, all tristearin-fed animals display greater expression of oxidative genes than triolein-fed animals, thereby explaining their lower adiposity. These results indicate that SCD1 is required for the pro-lipogenic effects of dietary stearate and that endogenously synthesized triolein is a more potent activator of lipogenesis in vivo. The use of the SCD1-/- mouse model provides a powerful tool to dissect the molecular effects of dietary and endogenous saturated vs. monounsaturated fatty acids.

Fritz Spener, the Executive Editor of BBA, Section Molecular and Cell Biology of Lipids, presented the ICBL Young Speaker Award in the form of a certificate and 500.- Euro to Harini Sampath for her enthusiastic and well balanced contribution. ICBL hopes and wishes that such events may encourage and stimulate young researchers (PhD students and Post-docs) to present their recent studies at this conference.

Günther Daum
Vice President of ICBL

47th International Conference on the Bioscience of Lipids (ICBL)
2006 September 5-10, Pécs, Hungary
ICBL – ILPS – ELIfe: Three successful Lipid Conferences in Pécs

Scientific Report

Three Lipid associations organized scientific conferences in one venue, orchestrated by staff of the Biological Research Center of the Hungarian Academy of Science (BRC-HAS) during September 5 – 10, 2006 in the city Pécs,120 miles south of Budapest, Hungary. The former BRC Director and HAS member Laszlo Vigh was conference chair with overall responsibility for the scientific program, with special focus on the ICBL sessions. Zoltan Kota of BRC took responsibility for the local logistics, lodging, social program airport bus transport. The Hungarian organizing committee was supported by an advisory board consisting of the session chairs. One of the driving forces behind ICBL and the cooperation with ELIfe and ILPS was Dr Fritz Spener, former Professor at the University of Münster, Germany, and chair of a number of European Lipid associations, now working from his home town University of Graz, Austria.

The International Conference on Bioscience of Lipids (ICBL) is a voluntary organization of academic institutes on lipid science with the goal to organize annually a lipid conference in a fancy European city by one of the members. Under the umbrella of the 47th ICBL Congress, the "science week" started with an ELIfe workshop with 6 lectures, transferring to the 47th ICBL Congress and ending with the ILPS Phospholipid Congress.

The workshop of the European Lipidomics Initiative (ELIfe) in cooperation with the International Society for the Study of Fatty Acids and Lipids (ISSFAL) started on September 5. The joint September 6 sessions were the start of the ICBL Congress. The International Lecithin and Phospholipid Society (ILPS) combined the last 2 ICBL sessions with two additional sessions as the 9th ILPS Congress "Phospholipids for Health" with the focus on nutrition and biochemistry of Phospholipids. Michael Schneider of Lecithos Germany and ILPS Executive Director Willem van Nieuwenhuyzen took ILPS responsibility in close cooperation with the local Hungarian organizers. With positive response of the participants all organizers concluded the "win-win" result of the 3 events in one place.

The social program was excellent, promoting the spirit between all scientists. Opening mixers, a reception in the town hall and a visit to winery caves presented the transdanubian local colour. A fine congress dinner was held. All sessions were held in the art-deco styled marble Congress Hall of the Palatinus Hotel in the city centre.

The scientific program was filled with 10 sessions with 47 plenary lectures by invited speakers and 17 oral presentations, selected from the submitted abstracts for posters. 100+ posters could be reviewed. In total 230+ technical registrations were made for all 3 events together with quite a number of participants attending 2 or even 3 congresses. Over 10 % of registrants including speakers came from Japan and a 5 % from North America. All abstracts of the lectures and posters are published in Chemistry and Physics of Lipids, Volume 143, Issue 1-2, September 2006.

The ELIfe workshop with 5 lectures, organized by Balazs Sarkadi and Andras Varadi (National Medical Center and Institute of Enzymology of HAS, Budapest), was devoted *to Lipidomics and Health*. Jürgen Borlak, Fraunhofer Institute Hannover, Germany, discussed the role of the lectin-like oxidized LDL receptor LOX-1 in endothelial dysfunction as a possible explanation of aberrant lipid metabolism in human diseases. Balazs Sarkadi informed about the ABC transporters for membrane lipids. Hee-Young Kim of NIH Bethesda MD, USA, introduced the application of mass spectrometry in membrane-related signalling research DHA containing phospholipids are the best substrate for biosynthesis of phosphatidylserine. Pierre Bougnoux of INSERM Tours, France, discussed in the relation between diet, cancer and the lipidome the index of the fatty acid profile as composite indicator associated with breast cancer protection.

After the ICBL opening ceremony the *10th L.L.M. van Deenen lecture* was presented by Ben de Kruijff of University of Utrecht, The Netherlands, with the title: "Membranes, where lipids and proteins meet". The lipids are organized in bilayers and provide the membrane with its barrier function. The proteins give rise to the specific functions of membranes such as transport, recognition and catalysis. In a new model function the role of the key membrane lipid phosphatidic acid was demonstrated.

In the joint ICBL–ELIfe session on *Lipidomics,* Markus Wenk of National University of Singapore discussed Lipidomics of host-pathogen interactions. Edward A. Dennis, University of California at San Diego, La Jolla CA, USA, told about the progress in LIPID MAPS and eicosanoid lipidomics. Gerd Schmitz of University of Regensburg, Germany, focussed on the effect of differential raft regulation in human macrophages upon Ox-LDL and E-LDL loading.

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In the session *Membrane Microdomains,* Janos Szollosi of HAS Debrecen, Hungary, told that membrane microdomains are distinct molecular association clusters with function properties. Gerhard Schütz of Johannes Keppler University Linz, Austria, had a look onto the nanoscopic organization of the plasma membrane using single molecule microscopy. Unfortunately Akihiro Kusumi of Nagoya University could not attend the meeting. His plenary talk was replaced by Toshihide Kobayashi, Riken, Japan. He introduced the combination of different novel cholesterol probes with the capability to reveal the cholesterol gradient in cell membranes. Finally Gerrit van Meer of Utrecht University, The Netherlands, discussed dynamic organization and unexpected function of typical raft lipids.

Thursday, September 7, started with 2 plenary lectures devoted to "*In memoriam to Tibor Farkas"*, the late scientist, who was leading the Biological Research Center of the Hungarian Academy of Sciences to excellence. Already in the 1960ties he worked in Italy and later in USA at times when open cooperation between the East and Western world was still very difficult. In recognition of his work was the election to member of the American National Academy of Sciences in 1989 for his work on biochemistry and physiology of lipids with focus on the adaptation of membrane to changes in temperature. Michael Schlame of New York University NY, USA. told about the Barth syndrome, which is a human disorder of cardiolipin metabolism, caused by mutations of the tafazzin gene, which lead to reduced content of cardiolipin. Pablo Escriba of the University of the Balearic Islands, Palma de Mallorca, Spain, reported the effects of membrane-lipid therapy.

The following session focussed on *Lipids and stress*. John Zehmer of Arizona State University Tempe AZ, USA, discussed the thermal acclimation in raft microdomains of the plasma membrane. John Harwood of Cardiff University, UK, presented his work on a novel desaturase involved in stress adaptation in the soil protozoon *Acanthamoeba castellani*. Ibolya Horvath of HAS Szeged, Hungary, has investigated stress protein responses in mammalian cells under the control of lipid composition and microdomain organization of membranes. Finally George M Carman of Rutgers University, New Brunswick NJ, USA, discussed the regulation of the yeast Mg^{2+} dependent phosphatidate phosphatase in response to nutrient deprivation.

The first Friday session was *Gene regulation by nuclear-targeted lipid signalling system*. Folkert Kuipers of University of Groningen, The Netherlands, spoke about the regulation of lipid metabolism by nuclear receptors LXR and FXR. Nico Marx of University of Ulm, Germany, presented the cardiovascular effect of PPAR activators. Session co-chair Bart Staels, INSERM Lille, France, demonstrated that nuclear receptors are the therapeutic targets to modulate the metabolic syndrome.

The next session had the challenging title *What are healthy lipids?* Ingeborg Brouwer, VU University Amsterdam, The Netherlands, lectured that n-3 fatty acids are important in preventing cardiac arrhythmia. Bengt Vissby of Uppsala University, Sweden, told about the health effect of CLA. There are as yet no proven health benefits of CLA in humans. However there is scope for further clinical trials to document the possible benefits of CLA isomers due to anti-tumorigenic properties or immunological effects. Gwendolyn Bercelo-Coblijn, now working at University of North Dakota, USA, demonstrated that α-linolenic acid enriched diets show beneficial effects in animal models. Flax seed containing diets were given to groups of steers, showing enhanced n-3 FA. In the human trials 6 groups of fire-fighters were receiving flax oil, fish oil and safflower oil at various concentrations during 12 weeks. The α-linolenic acid enriched diets significantly increase n-3 FA content in red blood cells.

ILPS Congress participants joined Saturday starting with the session *Metabolism and function of lipids in the brai*n. Co-chair Norman Salem, NIAAA-NIH Bethesda MD, USA, started with

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lecturing the function and metabolism of DHA pathways in the nervous system. Thomas Brenna of Cornell University Ithaca NY, USA, discussed the influence of perinatal long-chain polyunsaturated fatty acid-based nutrition and of prematurity on the composition and function of these fatty acids in neural tissue of non-human primates. Sylvie Chalon, INSERM Tours, France, presented the effects of n-3 PUFAs on neurotransmission systems: the contributions of animal models. László Puskás, BRC-HAS Szeged, Hungary, discussed protein micro arrays for dietary lipid-induced expression analysis in the brain. Andrew Sinclair, Deakin University Burwood, Australia, asked whether the relationship between long-chain PUFAs and brain function will reach the same public status as the "calcium and bone" relationship. Already 40 years ago detailed reports on long-chain n-6 and n-3 PUFA beneficial effects on human brain phospholipids was published. AA and DHA reduce the impact of depression, schizophrenia and data in animal models of Alzheimer's show evidence of benefits from DHA application. Benjamin Buaud, ITERG Bordeaux, France, discussed the effects of an n-3 PUFA deficiency on the expression of nuclear receptors and synaptic plasticity markers in rat brain. Jérémy Skrzypski, University of Bourgogne Dijon France, has investigated the influence of n-3 FA on the PUFA metabolism in rat brain in relation to aging

In the afternoon the *Sphingolipids I* session started with Yoshio Hirabayashi, Riken Brain Science Institute, Wako-shi, Japan, presenting the role of glycosphingolipid synthesis in brain development and survival. L-serine is essential for sphingolipid synthesis in the neuronal function and activity. Tony Futerman of Weizmann Institute, Rehovot, Israel, classified in the family of mammalian ceramide synthase gene, the longevity assurance (LASS) gene. Gábor Tigyi (University of Tennessee, Memphis TN,USA) presented the structural analysis of sphingosine-1-phosphate and LPA receptors from computational models for rational drug design. Howard Riezman, University of Geneva, Switzerland, has worked on the biosynthesis, transport and functions of sphingolipids in yeast. Co-chair Yasuyuki Igarashi of Hokkaido University Sapporo, Japan. presented topological metabolism and transbilayer dynamics of sphingolipids. Finally Makoto Ito, Kyushu University Fukuoka, Japan, discussed the ~~b~~ biological significance of ceramide metabolism in development of nervous and vascular systems in Zebrafish.

The first Sunday session chaired by Åke Nilsson of University of Lund Sweden was again devoted to *Sphingolipids II*. Åke introduced the topic with answering the question: Sphingolipids in the gut. What are the key issues? Dietary milk sphingolipids show in vivo studies in animals and humans positive effects anti-tumour effect on experimental colon cancer. Peter Slotte, Åbo Akademi University Turku, Finland extended told that sphingomyelin interacts with cholesterol in cells, reducing desorption rate and oxidation susceptibility. Willem F. Nieuwenhuizen TNO Quality for Life, Zeist, The Netherlands presented the dietary sphingolipids effects on lowering plasma cholesterol and triacylglycerol and preventing liver steatosis in APOE*3 Leiden mice.

Unfortunately Erich Gulbins University Medical Clinic, Essen, Germany could not present his paper on the ~~r~~regulation of cell functions by ceramide-enriched membrane domains. In his place Willem van Nieuwenhuyzen, Lecipro Netherlands gave a presentation on nutritive aspects of soy phospholipids with emphasis on choline supply. Rui-Dong Duan of University of Lund, Sweden presented his work on the enzymes sphingomyelinases and ceramidases in intestinal mucosa. The expression of alk-SMase is subject to change by dietary factors and some anticancer drugs.

Karel van Erpecum, University Medical Center, Utrecht, The Netherlands finalized the session with demonstrating the relevant influence of bile salts on molecular interactions between sphingomyelin and cholesterol in the biliary and intestinal tract.

The last session, chaired by Michael Schneider of Lecithos, was focussing on *Marine Phospholipids*. Erik Lovaas, University of Tromso / BioSea Management AS, Norway, lectured that

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marine phospholipids derived from fish and fish by products could become the third generation of n-3 products. He claims that these phospholipids facilitate n-3 FA transport over the blood-brain barrier, prohibiting n-3 FA deficiency in the brain. Joseph Hibbeln NIAAA/ NIH, Bethesda MD, USA, presented preliminary data on the positive influence of n-3 FA in reducing aggression and violence in groups of alcoholics; this effect was demonstrated to be significant in animal trials, increasing brain serotonin. Hee-Yong Kim of the same NIAAA/ NIH institute was the Alpha and the Omega of this theme, since she gave already a lecture at the ELIfe session and now she presented her work on the effect of phosphatidylserine in neuronal signaling. Then Dori Pelled, Enzymotec Ltd, Migdal-HaEmeq, Israel, told that n-3 phosphatidylserine affects positively the cognitive performance and Attention Deficit Hyperactivity Disorder (ADHD) in children. Maud Cansell, ISTAB-University of Bordeaux, France, compared the metabolic fate of n-3 PUFA in plasma and liver of rats supplemented with marine lipid-based liposomes or fish oil. The last speaker Hogne Hallaraker of Natural SA Hovdebygda, Norway, presented the functions of long-chain phospholipids. His company carries out in cooperation with institutes a number of clinical s

Sponsorships

In order to keep conference fee attractive, all three associations gratefully acknowledged the sponsors. The European Commission and ISSFAL sponsored the ELIfe event, Avanti Polar Lipids Inc, USA, sponsored both ICBL and ILPS conferences. ICBL was sponsored by Hungarian companies and foundations. ILPS was sponsored by ADM Midland – Lecithin Group, USA, and Spectral Service Laboratory GmbH, Germany.

Willem van Nieuwenhuyzen, Director Lecipro Consulting, willem@lecipro.nl

Laszlo Vigh, Director BRC-HAS Szeged, vigh@brc.hu

48th International Conference on the Bioscience of Lipids
5-10 September, 2007
Turku, Finland

http://www.icbl2007.abo.fi

Turku is located on the southwest coast of Finland. Turku has a cultural identity as Finland's historical centre. It is the country's oldest city, founded in the 13th century (775th anniversary in 2004) and it was the capital until 1812. Some of the main draws of Turku are its history and historical significance and the great natural beauty of the neighbouring archipelago.

The country's first university, The Royal Academy of Åbo (Turku), was established here. The history of Turku Castle, at the mouth of the River Aura, dates back to the 13th century which is rather exotic even in Central European Standards. Turku cathedral is the most prominent medieval church in Finland, and it also dates back to the 13th century. Turku has won the title of European Cultural Capital 2011.

Scientific Committee

J Peter Slotte, chairman
Peter Mattjus, secretary
Kalervo Hiltunen
Elina Ikonen
Matti Jauhiainen
Mikko Karttunen
Paavo Kinnunen
Vesa Olkkonen
Pentti Somerharju
Ilpo Vattulainen

Preliminary Scientific Programme

Tuesday, September 4

17.00-19.00 Registration
19.00-19.30 Opening ceremony (Chairman, ICBL president, ÅA rector)
19.30-20.30 The Laurens van Deenen Lecture

- **Joachim Seelig,** *Protein meets lipid-the role of lipids in protein folding*

Wednesday, September 5

Lipid metabolism 1 – Sphingolipids

- **Konrad Sandhoff,** *Sphingolipid metabolism and membrane dynamics*
- **Joost Holthuis,** *Sphingomyelin synthases: from identification to cellular function and regulation*
- **Alfred Merrill,** *Sphingolipid biosynthesis and function from an "omic" perspective*

Membrane structure and function 1 – Lipids and lipid domains

- **Jerry Feigenson,** *title to be announced*
- **John Silvius,** *title to be announced*

Thursday, September 6

Membrane structure and function 1 – Lipids and lipid domains

- **Göran Lindblom,** *What are the driving forces behind domain formation in lipid bilayers?*
- **Petra Schwille,** *Single molecule methods to characterize membrane domains*
- **Michael Edidin,** *Sea monsters and cell membrane domains*

Membrane structure and function 2 – Protein in membranes

- **Gunnar von Heijne,** *How proteins insert into the ER membrane*
- **Ronald McElhaney,** *The Interactions of the Antimicrobial Peptide Gramicidin S and Rationally Designed Analogs with Lipid Bilayer and Biological Membranes*
- **Anthony Lee,** *Lipid-Protein Interactions in Biological Membranes*

Secretariat steering committee: Nutrition Foundation of Italy
V.le Tunisia 38, 20124 Milan, Italy.
Tel. +39.02.76399532 - Fax +39.02.76003514; e-mail: info.nfi@tin.it
ICBL homepage: http://www.icbl.unibe.ch/

Friday, September 7

Intracellular lipid transfer

- **Jean Vance,** *Lipid dynamics in neurons*
- **Laura Liscum,** *Routes and mechanisms of intracellular cholesterol trafficking*
- **Vytas Bankaitis,** *The wonderful world of phosphatidylinositol transfer proteins*
- **Kentaro Hanada,** *Regulation of CERT-mediated non-vesicular trafficking of ceramide*

Saturday, September 8

Membrane structure and function – Computational studies

- **Pieter Thieleman,** *Molecular dynamics simulations of biological membranes*
- **Helmut Grubmüller,** *Molecular dynamics simulation of lipids and lipid-embossed proteins*

Lipid metabolism 2 – Fatty acids

- **Jens Knudsen,** *title to be announced*
- **Charles Rock,** *Regulation and structure of type II fatty acid synthases*
- **Stefan Alexson,** *Role of acyl-CoA thioesterases in fatty acid metabolism*

Presentation of next ICBL

Closing ceremony

Important Dates

March 1, 2007 - Registration and payment accepted (reduced fee)

- - Abstracts can be submitted
- - Hotels can be booked

May 31, 2007

- - Deadline for registration with reduced fee
- - Deadline for payment of conference fee (reduced fee)
- - Deadline for abstracts submission for oral or poster presentation
- - Deadline for hotel registration to reduced fees

June 15, 2007

- - Deadline for selection of oral communications

Local Organizing Committee

Peter Mattjus
Thomas Nyholm
Bodil Ramstedt
J.Peter Slotte

Scientific Committee

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Elina Ikonen
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Mikko Karttunen
Paavo Kinnunen
Peter Mattjus
Vesa Olkkonen
J Peter Slotte
Pentti Somerharju
Ilpo Vattulainen

Address for correspondence

J.Peter Slotte (Chairman)
Department of Biochemistry and Pharmacy
Åbo Akademi University
Tykistokatu 6A
FIN 20520 Turku, Finland
phone/fax +358-2-2154689 / +358-2-2154010
e-mail: jpslotte@abo.fi

Hot topics to be chosen on short notice as they come u

Future Meetings
49th ICBL Maastricht, The Netherlands
September, 2008

Address for correspondence
Prof. Jan F. C. Glatz
Dept. of Physiology, CARIM, Maastricht University
P.O. Box 616, NL-6200 MD
Maastricht, The Netherlands
Phone: +31 43 388 1200
Fax: +31 43 388 4166
Glatz@fys.unimaas.nl

Marzia Galli Kienle
Secretary ICBL Steering Committee
E-mail: marzia.gallikienle@unimib.it
Phone: +39 02 64488212
Fax: +39 02 64488252