

International Conference on the Bioscience of Lipids



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2012 NEWSLETTER

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52nd International Conference on the Biosciences of Lipids (ICBL) **Warsaw, Poland, August 30-September 3, 2011** ***Social Report: "Lipids in the Phoenix City"***

The 52nd International Conference on the Bioscience of Lipids (ICBL) was held in Warsaw, Poland, from 30 August to 3 September 2011. The title of conference "Expanding the Horizons of Lipidomics" was an excellent motto for this meeting which is annually organized as a forum for presentation and discussion of the most recent results of fundamental investigations in all aspects of lipid research and related applications.

The organizers of the ICBL 2011, Ewa Swiezewska from the Institute of Biochemistry and Biophysics PAS, Warsaw; and Agnieszka Dobrzyn from the Nencki Institute of Experimental Biology PAS, Warsaw, had set up a most interesting scientific program together with their colleagues of the Scientific and Organizing Committee from Poland and abroad. The Conference covered seven sessions addressing (1) Lipids in molecular medicine; (2) Lipids in regulation of gene expression; (3) Lipids in signaling and intracellular trafficking; (4) Isoprenoid lipids; (5) Membrane microdomains, lipid binding proteins and membrane repair; (6) Lipid modifications of proteins; and (7) Lipid-protein interactions. These topics were representative of recent highlights in lipid research and were energetically discussed in the lecture hall, during poster sessions and coffee breaks.

The 52nd ICBL was held at the Old Library of the University of Warsaw. This historical building is located in the Warsaw University Campus and serves as a conference center after recent renovation.



The Old Library of the University of Warsaw, venue of the 2011 ICBL

The University of Warsaw is the largest and one of the most prestigious universities in Poland, ranked as the best Polish university in 2010 and 2011. Among the many notable alumni of this university are Frédéric Chopin (pianist and composer), Leonid Hurwicz (economist and mathematician, Nobel Prize in Economics), David Ben-Gurion (1st Prime Minister of Israel), Józef Rotblat (physicist, Nobel Peace Prize) and Ludwik Zamenhof (physician, inventor of Esperanto). The venue at the University of Warsaw provided a stimulating atmosphere for the 155 participants of the ICBL and became the meeting point for established and young lipid researchers for the five days of the meeting.

Traditionally, ICBL covers fundamental lipid research and related applications. A specific aim of the ICBL is supporting young researchers to present their own work and to get in touch with established scientists. In the opening ceremony, the Chairperson of ICBL 2011, Ewa Swiezewska, welcomed the delegates and underlined the high aims of ICBL. She also mentioned the importance of the ICBL for Warsaw and Poland to demonstrate the enthusiasm of Polish scientists for this field of research. It was a special honor for ICBL that Prof. Maciej Banach, the Deputy Minister of Science and Higher Education of Poland participated in this opening ceremony. As a scientist and professor at the Medical University of Lodz he pointed out the importance of research for Polish society and thanked the organizers of the ICBL for their efforts in gathering many world-leading lipid experts in Poland and in bringing this conference to Warsaw. Guenther Daum, the President of the ICBL, opened the conference by appreciating Ewa Swiezewska's and Agnieszka Dobrzyn's valuable contributions to the planning and organization of this meeting. Then, he announced the first highlight of the Opening Session, the Laurens Van Deenen Lecture named after one of the pioneers of lipid research. This Lecture entitled "Lipidomics: making sense of the data lode" was given by Peter J. Quinn from the King's College London, UK. He gave an excellent overview of modern techniques of lipid research including mass spectrometry and biophysical techniques which opened new avenues for our understanding of membrane structure and function. The Opening Session ended traditionally with a

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Get-together Party in a relaxed atmosphere that promoted the meeting of old friends and making new ones.

The following days were devoted to interesting keynote lectures, short oral presentations and poster sessions. During coffee breaks and at lunch time participants had ample chances to sit down and talk about science and science-related topics. Since ICBL is well known for its relaxed atmosphere it also allows personal contact of participants beyond their research interests. It was a special pleasure to see that young ICBLists became friends very quickly, discussed their everyday business and continued their exchange of experience, most likely also later in the evening with some Polish beer.

The traditional free afternoon of the ICBL was devoted to a Warsaw sightseeing tour. Participants were taken by busses to the Old Town of Warsaw where guides explained the Ups and Downs in Polish history. Today, Warsaw has a population of 1,700,000 residents and is the 9th largest city in the European Union. Warsaw has become a global city, a major international tourist destination and an important economic hub in Central and Eastern Europe. It is also known as the "phoenix city" due to the fact that it has survived many wars throughout its bloody history. Most notably the city had to be painstakingly rebuilt after extensive damage in World War II, during which 80% of its buildings were destroyed. As a matter of fact, most of the "historical" buildings which tourists can visit nowadays are reconstructions of the originals. Nevertheless, visitors felt the charming atmosphere of the city at the Royal Castle, King Zygmunt's Column, Market Square and the Barbican.



The Royal Castle and King Zygmunt's Column

At various places the mermaid, who is Warsaw's symbol, can be found on statues throughout the city and on the city's coat of arms. We also learned about persons who lived and worked in Warsaw. One of these persons was Maria Skłodowska-Curie who achieved international recognition, and two Nobel Prizes for her scientific discovery of radiation.



Maria Skłodowska-Curie old house and nowadays museum

Of course, there are many places in Warsaw connected with the life and work of Frédéric Chopin. During the summer time the Chopin Statue in the Royal Baths (Łazienki) Park is a place where pianists give concerts to the audience. In many places in the city the Jewish culture and history resonate down through time. The tragic pages of Warsaw's history are commemorated in places such as the Monument to the Ghetto Heroes, the Umschlagplatz and fragments of the Ghetto wall on Sienna Street. With pride, our guides also showed modern Warsaw to ICBL visitors. One of the highlights was the Warsaw Uprising Memorial which commemorates the thousands of heroes of the 1944 Warsaw Uprising who gave their lives for their homeland. This memorial stands next to the impressive building of the courthouse. This building is surrounded by a series of columns upon which are written legal maxims in Latin and Polish. Behind the court are three bronze caryatids placed in the water actually holding up part of the building. Another impressive building was the University Library which is surrounded by the University Library garden, one of the largest and most beautiful roof gardens in Europe.

Accompanying persons had even more opportunities to learn about the beauty and the tradition of Warsaw. They were taken to Chopin's birthplace in Żelazowa Wola. Frédéric Chopin (1810 – 1849), the Polish composer and pianist, is considered one of the great masters of Romantic music and has been called "the poet of the piano". Born in Żelazowa Wola, a small village in the Duchy of Warsaw, he grew up in Warsaw and completed his musical education there. In 1830, he settled in Paris as part of the Great Emigration. Żelazowa Wola is known for its picturesque Masovian landscape, including numerous winding streams surrounded by willows and hills. The ICBL accompanying persons had a chance to see Chopin's home, surrounded by a park with a monument of the pianist, and a museum devoted to the composer. After this sightseeing tour traditional national dishes were served to the visitors.

The Conference Dinner of the 52nd ICBL took place in the Biblioteka Rolnicza (Central Agricultural Library) downtown Warsaw. This Library houses about 380,000 volumes of publications and a collection of old prints. For the ICBL the large hall was adapted for the Conference Dinner. Following

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the tradition of previous ICBLs, during the Conference Dinner the winners of the Poster Awards were presented by the Vice President of the ICBL, Peter Slotte. He thanked the members of the Poster Award Jury for evaluating the posters and congratulated the winners for their excellent performance. It was a pleasure to see the award winners from Japan and France, whose work will be described below in this Newsletter, celebrating with their colleagues. Then, the President of the ICBL, Guenther Daum, thanked the organizers again for their efforts and hospitality. In his Dinner speech he addressed the hard life of a conference organizer. It is well known to everybody who has organized a meeting that many things can go wrong starting from the invitation and appearance of keynote speakers to the catering at the Conference Dinner and, last but not least, to the conference budget. Of course, organizing a conference is also rewarding because it is an excellent opportunity to get in touch with many colleagues of the community. The ICBL President's speech ended with the traditional toast to the "Spirit of ICBL", which describes not only lipid research at a high level but also joyful and long lasting friendships.



The ICBL President Guenther Daum during the traditional toast to the "Spirit of ICBL"

The official part of the Conference Dinner was concluded with the surprising presentation of two special awards. Angela Corcelli from Bari, Italy, got the Best Supervisor Award for bringing the largest group of students to the ICBL 2011. Andrew Brown from Sydney, Australia, received the ICBL Globetrotter Award for travelling the longest distance to reach Warsaw. The evening ended with the performance of the "Monday Night Girls" who sang well-known melodies from musicals.



The "Monday Night Girls" singing famous melodies from musicals

In the Closing Session of the ICBL 2011 George Carman and Guenther Daum presented the ICBL Young Speaker Awards to the winners whose work will be described below in this Newsletter. With one of the awards going to Italy and the other one remaining in Poland, young lipid researchers from abroad and from the host country were equally honored. The high quality of oral presentation given by young ICBLists was much appreciated. Finally, Ewa Swiezewska's and Agnieszka Dobrzn's efforts were acknowledged and the excellent work of their team was appreciated. The next ICBL, entitled "Frontiers in Lipid Biology", was announced which will take place in Banff, Canada, from 4 to 9 September 2012, as a joint meeting with the Canadian Lipoprotein Conference and as a Special Symposium of the American Society of Biochemistry and Molecular Biology. Dennis Vance, the organizer of this conference, cordially invited the audience to this conference. When Guenther Daum, the President of the ICBL, closed the 2011 Conference it was not a Good-bye but rather a See-you-again address.

We are looking forward to the 53rd International Conference of the Bioscience of Lipids in Banff, Canada, in September 2012 and hope to see many of you again at this occasion.

Guenther Daum
President of the ICBL

52nd International Conference on the Biosciences of Lipids (ICBL)
Warsaw, Poland, August 30-September 3, 2011
Scientific Report: "Expanding the Horizons of Lipidomics"

The 52nd International Conference on the Bioscience of Lipids (ICBL) entitled "Expanding the Horizons of Lipidomics" gathered 155 registered participants (including 10 accompanying persons), 25 invited speakers, 10 representatives of sponsoring organizations, 10 members of the organizing committee, 10 other participants (representatives of the Ministry of Sciences and Higher Education of Poland, the Polish Academy of Sciences, the University of Warsaw and journalists and students). Participants of the 52nd ICBL came from all over the world and included 27 international delegations with the largest group from Japan with 30 people. To encourage young researchers to join the meeting the organizers had provided travel grants to five PhD students.

The scientific program of the conference included the opening and closing sessions and seven thematic sessions with oral presentations accompanied by corresponding poster sessions.

The opening session included the 15th *van Deenen Lecture* by **Peter J. Quinn** (King's College, London, UK) entitled "Lipidomics: making sense of the data lode". The opening lecture gave an excellent overview of developments in studies of biophysical properties of lipids extracted from biological tissues.



Peter J. Quinn during the 15th van Deenen Lecture

Session 1 was devoted to the role of lipids in molecular medicine and chaired by **Jean E. Vance** (Edmonton, Canada). **James Ntambi** (Madison, USA) discussed the surprising role for skin stearyl-CoA desaturase-1 in obesity and diabetes. **Thomas Gettys** (Baton Rouge, USA) presented mechanisms and implications of the tissue-specific remodeling of lipid metabolism by dietary methionine restriction. **Jean E. Vance** (Edmonton, Canada) described how cyclodextrin normalizes cholesterol transport in Niemann-Pick C disease. Short oral presentations in this session were given

by **Anders Jacobsson** (Stockholm, Sweden), **Rachel Kraut** (Singapore), **Magdalena Jazurek** (Warsaw, Poland), **Apostolos Pappas** (Skillman, USA) and **Hiromasa Tojo** (Osaka, Japan).

Session 2 focused on lipids in regulation of gene expression and was chaired by **Jan Kopecky** (Prague, Czech Republic). During this session **Christian Wolfrum** (Schwerzenbach, Switzerland) presented molecular mechanisms influencing adipogenesis and the development of metabolic disorders. **Frank Gonzalez** (Bethesda, USA) discussed the application of metabolomics to investigate the roles of lipids in disease and chemical toxicity. **Beata Kiec-Wilk** (Cracow, Poland) spoke about dietary fatty acids and formation of lipid droplets in human preadipocytes (SVF) and endothelial cells. **Jan Kopecky** (Prague, Czech Republic) presented the mechanisms behind beneficial effects of marine lipids, and **Gerd Schmitz** (Regensburg, Germany) discussed ATP10D as putative ceramide translocase and novel biomarker of diabetes. The short oral presentations selected for this session were delivered by **Andrew Brown** (Sydney, Australia), **Alessandra Ferrari** (Milano, Italy), **Shuntaro Hara** (Tokyo, Japan) and **Kiyoto Motojima** (Tokyo, Japan).

Session 3 on lipids in signaling and intracellular trafficking was chaired by **Laszlo Vigh** (Szeged, Hungary). **Elna Ikonen** (Helsinki, Finland) described cholesterol-regulated signaling and transport in endo-lysosomes. **Shun-ichi Nakamura** (Kobe, Japan) delivered a lecture on sphingolipid signaling and neuronal function. **Laszlo Vigh** (Szeged, Hungary) discussed how membranes control the expression and cellular distribution of stress proteins. Short oral presentations of this session were given by **George Carman** (New Brunswick, USA), **Jean-Marie Ruyschaert** (Bruxelles, Belgium), **Stefan Wallner** (Regensburg, Germany) and **Gwendolyn Barceló-Coblijn** (Palma, Spain).

Session 4, devoted to isoprenoid lipids, was chaired by **Kazimierz Strzałka** (Cracow, Poland). **Gustav Dallner** (Stockholm, Sweden) discussed the regulation of coenzyme Q biosynthesis. **Kazimierz Strzałka** presented an overview of the effect of carotenoids on physical properties and molecular dynamics of lipid bilayers. **Michel Rohmer** (Strasbourg, France) summarized the role of the methylerythritol phosphate pathway for the biosynthesis of isoprene units in bacteria and plant plastids. **Po-Huang Liang** (Taipei, Taiwan) described the kinetic, mechanistic, structural and inhibitory aspects of the *cis*-prenyltransferase catalyzed lipid chain elongation. **Anna Szakiel** (Warsaw, Poland), **Rita Vitale** (Bari, Italy) and **Thomas Haines** (New York, USA) gave short oral presentations.

Session 5 was devoted to membrane microdomains, lipid binding proteins and membrane repair and was chaired by **Volker Gerke** (Muenster, Germany). **Jin-ichi Inokuchi** (Sendai, Japan) spoke about the involvement of membrane microdomains in the pathogenesis of metabolic syndrome and asthma. **Peng Li** (Beijing, China) discussed the role of CIDE proteins in lipid storage and secretion. **Annette Draeger** (Bern, Switzerland) talked about plasma membrane repair and cellular damage control. **Volker Gerke** (Muenster, Germany) summarized the role of membrane microdomains in regulated secretion in endothelial cells. Short oral presentations selected for this session were presented by **Susumu Mitsutake** (Hokkaido, Japan), **Yoshio Hirabayashi** (Wako, Japan), **Kamila Oglecka** (Singapore) and **Norma B. Sterin-Speziale** (Buenos Aires, Argentina).

Session 6 on lipid modifications of proteins was chaired by **Kirill Alexandrov** (Brisbane, Australia) who also presented an overview on the directed evolution of the protein prenylation machinery. Short oral presentations were given by **Yusuke Ohno** (Hokkaido, Japan), **Patricia Appolinário** (São Paulo, Brazil) and **Małgorzata Gutkowska** (Warsaw, Poland).

Session 7, devoted to lipid-protein interactions, was chaired by **Toon de Kroon** (Utrecht, The Netherlands) who also presented a lecture on application of crosslinking and clicking for detecting lipid-protein interactions on a proteome-wide scale. **Amitabha Chattopadhyay** (Hyderabad, India) discussed the role of membrane cholesterol in the function of serotonin 1A receptors. The short oral presentation of this session was given by **Michał Grzybek** (Dresden, Germany).

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The program was completed by a closing session chaired by **Guenther Daum** (Graz, Austria) with a Closing Lecture by **Michel Lagarde** (Lyon, France) entitled “expanding the horizons of lipidomics”.

During the meeting the awards for best posters and best short oral communications were announced. The Best Poster Awards (donated by *Biochimica et Biophysica Acta/Elsevier*) were received by Takanori Matsuda (Kyushu University, Fukuoka, Japan) and Riikka Hynynen (Institute of Developmental Biology and Cancer, CNRS, Université de Nice, France). Awardees for best oral presentations were Alessandra Ferrari (Università degli Studi di Milano, Milano, Italy) who received the *Journal of Biological Chemistry/Herbert Tabor Young Investigator Award*; and Małgorzata Gutkowska (Institute of Biochemistry and Biophysics Polish Academy of Sciences, Warsaw) was awarded the *Progress in Lipid Research/Elsevier Award*. Details about the Poster and Young Investigator Awards will be reported in separate sections of this Newsletter.

The Book of Abstracts of the 52nd ICBL, containing abstracts of plenary lectures, short oral communications and poster presentations, was published by *Chemistry and Physics of Lipids* (vol. 164, Supplement, August 2011). A special thematic issue of *Molecular Membrane Biology* related to the 52nd ICBL conference will be published in the spring of 2012.

Ewa Swiezewska

On behalf of the Organizing Committee of the 52nd ICBL

The Poster Awards of the 52nd ICBL *Expanding the Horizons of Lipidomics*

The Conference dinner of the 52nd ICBL in Warsaw was held in the beautiful *Biblioteka Rolnicza* in central Warsaw. During the conference dinner the traditional ICBL Poster Award ceremony was held. The Poster Award presentation to young scientists is a much valued tradition within ICBL, since it is a means of rewarding a few young scientists for their efforts in presenting scientific findings of high quality to their peers. This year saw many excellent posters from young and not so young scientists, and the poster sessions were very much appreciated by the participants.

Members of the ICBL 2011 Poster Award Jury were: J Peter Slotte (chairman), Finland; Peng Li, Peoples Republic of China; Aldona Dembinska-Kiec, Poland; Beatriz Caputto, Argentina; Tadeuz Chojnacki, Poland; Yasuyuki Igarashi, Japan; and Laszlo Vigh, Hungary.

From about 55 posters which were presented by young scientist at the ICBL 2011 in Warsaw, 20 were pre-selected as finalists by the Poster Award Jury. The pre-selected posters were more closely inspected by all members of the Poster Award Jury during the Conference poster sessions. Criteria for selecting the top posters were the relevance of the topic, originality of the subject, the quality of the presentation, the visual appearance, and discussions with the presenter. In this year's Award presentation, two equal Poster Awards were granted. These were sponsored by *Biochimica et Biophysica Acta* (Elsevier). The abstracts of the two winning posters are shown below. The ICBL community is proud of the high quality of the posters presented at the Warsaw meeting and congratulates the two winners.



Takanori Matsuda (center-right) and Riikka Hynynen (center-left) Peter Slotte (left) and Guenther Daum (right)

J. Peter Slotte
Vice President of ICBL

The winners of the 2011 ICBL Poster Awards were:

PO8

Species-dependent pathway for production of PUFA in thraustochytrids revealed by analysis of $\Delta 12$ fatty acid desaturase

Takanori Matsuda¹, Keishi Sakaguchi¹, Rie Hamaguchi¹, Takumi Kobayashi¹, Eriko Abe¹, Yoichiro Hama², Masahiro Hayashi³, Daisuke Honda⁴, Yuji Okita⁵, Shinichi Sugimoto⁵, Nozomu Okino¹, Makoto Ito¹

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Thraustochytrids, eukaryotic marine protists including the genera *Thraustochytrium* and *Aurantiochytrium* (formerly *Schyzochytrium*), are known to accumulate polyunsaturated fatty acid (PUFA), especially DHA (C22:6n-3). Accumulating evidence suggests that they produce PUFA *via* polyketide-like fatty acid synthesis (PUFA synthase) and desaturase/elongase (standard) pathways. However, it is still not clear whether the latter pathway actually functions in thraustochytrids. Here, we report that the standard pathway actually functions to produce PUFA in *Thraustochytrium aureum* ATCC34304 but not in *Aurantiochytrium limacinum* mh0186. We found that exogenously added oleic acid (C18:1) was converted to linoleic acid (C18:2) in *T. aureum* and $\Delta 12$ -fatty acid desaturase ($\Delta 12$ des)-expressing *A. limacinum* transformants but not in the wild-type strain of *A. limacinum*. Deletion of the $\Delta 12$ des gene in *T. aureum* by homologous recombination resulted in the accumulation of oleic acid and the decrease of linoleic acid and its downstream ω -6 PUFA. However, the content of DHA is increased slightly in $\Delta 12$ des-deletion mutants, suggesting that DHA is mainly produced in *T. aureum* *via* the PUFA synthase pathway. Additionally, ¹⁴C-oleoyl-CoA was converted to ¹⁴C-linoleic acid and its downstream PUFA in *T. aureum* but not in $\Delta 12$ des-deletion mutants. These results clearly indicate that *A. limacinum* produces PUFA *via* the PUFA synthase pathway, while *T. aureum* is *via* both PUFA synthase and standard pathways.

PO44

Studying the role of sterols in Hedgehog signaling

Riikka Hynynen, Aline Scholler Joulie, Laurent Ruel, Armel Gallet, Alexandra Cervantes, Gisela D'Angelo, Pascal Thérond

Institute of Developmental Biology and Cancer, CNRS, Université de Nice, France

Hedgehog (Hh) is a secreted morphogen that controls metazoan development. Misregulation of the Hh pathway leads to developmental defects and cancers. Hh proteins are atypical due to covalently bound cholesterol, which is a unique feature of this protein family. In addition, in mammals, sterol synthesis is required for Hh signaling in responding cells. Using *Drosophila melanogaster*, which is auxotroph for cholesterol, we wanted to clarify the requirement of sterols in Hh signaling. Among RNAi and mutant flies we searched for fly genotypes, in which intracellular sterol transport was defective, as observed by increased filipin staining. We found three such genotypes. First, *npc1a* mutant flies displayed a reduction of Hh signaling in embryos, as well as in wing imaginal discs. Second, *npc2a* mutant flies presented increased cholesterol accumulation without a change in Hh signaling. In third phenotype, overexpression of a dominant negative form of the Hh receptor, Patched-SSD, caused cholesterol accumulations together with activated Hh signaling. However, the filipin positive vesicles in the case of NPC1a depletion and Patched-SSD overexpression do not represent similar cellular compartments. Based on our results we conclude that Hh signaling is not impaired in cells in which sterol trafficking is compromised. It also indicates that NPC1a plays a role in Hh signaling, independently of its role in sterol trafficking.

The 52nd ICBL Young Investigator Awards

The final session of the ICBL meeting was capped off with the presentations of the **Herbert Tabor Young Investigator Award**, which was awarded to Alessandra Ferrari (Milano), and the **Progress in Lipid Research Award**, which went to Malgorzata Gutkowska (Warsaw). Presenting the awards to Ferrari and Gutkowska were George M. Carman (Associate Editor, Journal of Biological Chemistry) and Guenther Daum (Executive Editor, Progress in Lipid Research), respectively. Ferrari received a prize of \$1,500 and a crystal commemorating the award. Gutkowska received €500 and a diploma. The titles and abstracts of the two Young Investigator award winner presentations are shown below.



Alessandra Ferrari (center) with George Carman (left) and Guenther Daum (right)



Malgorzata Gutkowska (center) with George Carman (left) and Guenther Daum (right)

George M. Carman
ICBL Corresponding Member

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The winners of the 2011 ICBL Young Investigator Awards were:

S07

Inhibition of class I histone deacetylases unveils a mitochondrial signature and enhances lipid oxidation in skeletal muscle and adipose tissue

Alessandra Ferrari¹, Andrea Galmozzi¹, Nico Mitro¹, Elise Gers¹, Federica Gilardi¹, Cristina Godio³, Gaia Cermenati¹, Donatella Caruso¹, Antonello Mai², Enrique Saez³, Emma De Fabiani¹, Maurizio Crestani¹

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³*Department of Chemical Physiology, The Scripps Research Institute, USA*

Many transcriptional and epigenetic mechanisms are involved in the regulation of lipid metabolism. Histone deacetylases and nuclear receptors play an important role in the regulation of lipid metabolism in adipose tissues, liver and skeletal muscles in normal and disease states. It has been shown that mitochondrial dysfunction associated to unbalanced energy intake and expenditure could be a possible cause to the onset of obesity and insulin resistance. By using selective biochemical inhibitors here we show that class I histone deacetylases (HDACs) are important regulators of mitochondrial lipid oxidation. MS275, a class I selective HDAC inhibitor, increased mitochondrial biogenesis and oxidative metabolism in C2C12 murine myotubes via upregulation of the transcriptional coactivator PGC-1a, a key determinant of mitochondrial biogenesis. Knock down of HDAC3 by RNAi increased the expression of PGC-1a and recapitulated the effects of MS275. Administration of MS275 to db/db mice improved the obese and diabetic phenotype, by reducing body weight, fasting glucose and insulin and by increasing insulin sensitivity. Metabolic studies showed elevated oxygen consumption in mice on MS275 and the concomitant decrease of the respiratory exchange ratio suggested a switch to lipid oxidative metabolism. In addition, higher heat production was noticed in mice treated with MS275, an effect paralleled by the improved functionality of brown adipose tissue consequent to increased expression of typical marker genes such as Ucp1, Prdm16, Adrb3, Pgc-1a. We also show that class I HDAC inhibitors cause a major reprogramming leading to a dramatic 'browning' of white adipose tissue (WAT) in a Prdm16-independent fashion and promote lipid catabolism and mitochondrial biogenesis. At the same time, infiltration of macrophages and the expression of inflammatory markers in WAT were reduced. In conclusion, biochemical inhibition of class I HDACs revealed a mitochondrial signature mediated by the transcriptional coactivator Pgc-1a in skeletal muscle and by the Pgc-1a/Pparg axis in adipose tissue, leading to increased lipid oxidation and ultimately to insulin sensitizing effect in db/db mice.

S023

Isoforms of Rab Geranylgeranyl Transferase complex from Arabidopsis thaliana

Małgorzata Gutkowska, Ewa Swiezewska

Institute of Biochemistry and Biophysics PAS, Warsaw, Poland

Protein prenylation is the post translational modification leading to an attachment of a 15-carbon farnesyl or 20-carbon geranylgeranyl isoprenoid chains to a cysteine residue in a protein by a thioether bond. RabGGTase is an enzyme responsible exclusively for geranylgeranylation of proteins belonging to Rab family of small GTPases present in every eukaryotic cell. They take part in maintenance of intracellular membrane compartments identity and vesicular transport. The correct membrane localization (by means of geranylgeranylation) and GTP-dependent cycling of Rabs are crucial for the membrane/vesicular/vacuolar system to perform its basic functions. The engineering of Rab localization and vesicular cycling by introducing changes in the RabGGTase enzyme may translate to plants of agriculturally desired properties, therefore it seems important to characterize plant enzymatic complex in detail. The RabGGTase complex is build of three subunits: alpha and beta subunits forming a catalytic core and protein substrate presenting REP (Rab Escort Protein). In Arabidopsis genome there are two genes coding for each RabGGTase subunit, one gene coding for main RabGGTase alpha and one for main RabGGTase beta ubiquitously expressed in all organs and

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two genes coding for side subunits with much narrower profile of expression, mainly in gametophytes. The hypothesis that they form two distinct pairs needs a confirmation. To this end we cloned and purified each subunit of RabGGTase complex and directly measured in vitro the affinity of each pair of the two subunits. The preliminary data on biochemical characterization of RabGGTase complex will be presented.

The ICBL Steering Committee
“Old Friends and New Friends”

On January 1, 2012, the three year term of **Jan Glatz**, as an Ordinary Member of the ICBL Steering Committee, will end. Jan Glatz is Professor at the Department of Molecular Genetics of the Cardiovascular Research Institute Maastricht (CARIM), Maastricht University, The Netherlands, and was organizer of ICBL 2008 in Maastricht, The Netherlands. We would like to thank Jan Glatz for his contributions to ICBL and hope that he will stay in touch with our conference also in the future.



Jan Glatz



Ewa Swiezewska



Toon de Kroon

On January 1, 2012, two new members of the ICBL Steering Committee will start their term, namely Ewa Swiezewska as an Ordinary Member and Toon de Kroon as a Member of the ICBL Advisory Board.

Ewa Swiezewska, Professor at the Institute of Biochemistry and Biophysics PAS, Warsaw, Poland, was the organizer of ICBL 2011 together with Agnieszka Dobrzyn from the Nencki Institute of Experimental Biology PAS, Warsaw, Poland. Thanks to the enthusiasm of these two colleagues ICBL 2011 in Warsaw, Poland, became a very interesting and successful meeting. Ewa Swiezewska whose research work is focused on polyisoprenoids has attended several previous ICBLs and is a well-respected member of our community.

Anton (Toon) I.P.M. de Kroon is a member of the Department of Membrane Enzymology at the Utrecht University, The Netherlands. He has developed his research in the long-term tradition of lipidology at the Utrecht University dating back to the era of Laurens L. M. van Deenen. His recent research interest is focused on phospholipid metabolism and membrane assembly as well as on lipidomics and proteomics related to these processes. Toon de Kroon has attended several ICBLs and was a keynote speaker at the conference in Warsaw 2011.

Guenther Daum
President of the ICBL

The 53rd International Conference on the Biosciences of Lipids
“Frontiers in Lipid Biology”
in conjunction with an ASBMB “Special Symposium” and
the Canadian Lipoprotein Conference
September 5-8, 2012
Banff, Canada



Preliminary program of the 53rd ICBL

Wednesday, September 5, 2012

16th Laurens Van Deenen Lecture

Rudi Zechner (Graz, Austria)

Session 1: Dynamics of Triacylglycerols

Session 2: Phospholipid Function

Thursday, September 6, 2012

Session 3: Lipid Signaling and Trafficking

Session 4: Cholesterol/Lipoproteins

Friday, September 7, 2012

Session 5: Genetics of Lipid Associated Diseases

Saturday, September 8, 2012

Session 6: Regulation of Fatty Acid Metabolism

Session 7: Lipids and Diseases

Closing Banquet/Western BBQ

Last update: December 12, 2011

Venue

Banff, Canada

The conference will be held at the Banff Conference Centre in Banff National Park, Canada. The Centre has excellent conference facilities and accommodations, and is readily accessible from Calgary International Airport. An important feature of the meeting is oral and poster presentations by trainees/young scientists.

Local Organizers

Dennis Vance (Canada)

William Dowhan (USA)

Fritz Spener (Austria)

Rene Jacobs (Canada)

Richard Lehner (Canada)

Spencer Proctor (Canada)

Simonetta Sipione (Canada)

Jean Vance (Canada)

Dawei Zhang (Canada)

Address for correspondence

For any information about the 53rd ICBL please contact ICBL Conference Secretariat

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ASBMB homepage: <http://www.asbmb.org/ASBMBMeetings/SpecialSymposia/SymposiaPage.aspx?mid=23&id=13400>

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FUTURE MEETING
54th International Conference on the Bioscience of Lipids
“Linking Transcription to Physiology in Lipidomics”
September 17-21, 2013
Bari, Italy



The seashore of Bari

Venue: Sheraton Nicolaus Hotel & Conference Center in Bari
<http://www.nicolaushotels.com/eng/sheraton-bari.htm>

Organizing Committee

Chairs: Antonio Moschetta, moschetta@negrisud.it; Maurizio Crestani, maurizio.crestani@unimi.it

Donatella Caruso, Emma De Fabiani, Nico Mitro, Giuseppe Palasciano, Piero Portincasa, Sandro Sonnino, Elda Desiderio Pinto, Lazlo Vigh, Chiara De Girolamo

Preliminary Scientific Program

Signal transduction, gene expression and circadian rhythm in the regulation of lipid metabolism
Nuclear receptors and the transcriptional regulation of lipid metabolism
The gut-liver axis route for lipids
Dissecting lipid metabolism in diabetes and atherosclerosis
Lipid metabolism, transcription, neurogenesis, stemness
Dynamics of membrane microdomains and physiopathological implications
Lipids and membranes in stress management: stress perception, signaling, repair and adaptation

Maurizio Crestani
Secretary of ICBL Steering Committee