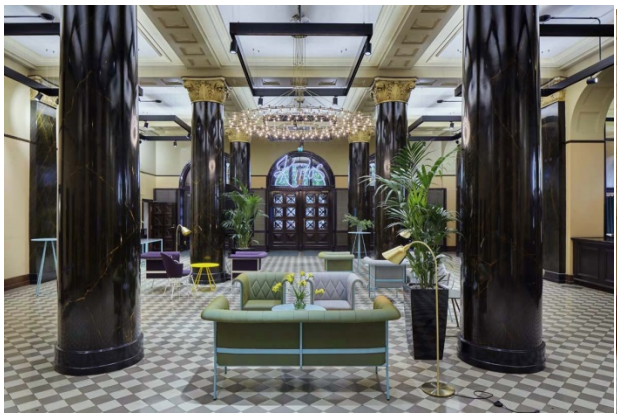
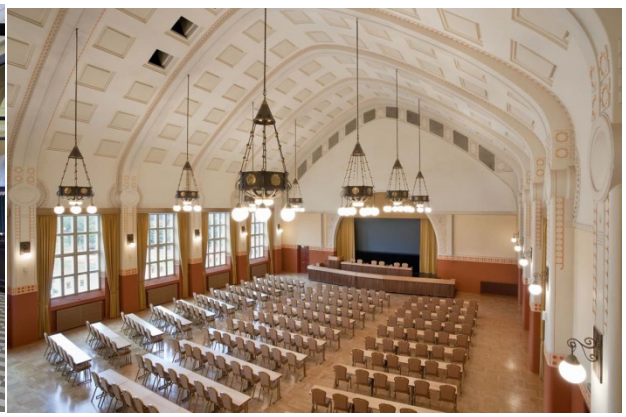
The 59th ICBL conference with the title: 'The Lipid Fluxes and Metabolism – From Fundamental Mechanisms to Human Disease' was held between Sept 4-7, 2018 in Helsinki, Finland at the Helsinki Workers' House also known as Paasitorni. It is a beautiful granite Art Nouveau building conference and congress center of exceptional value in terms of its architecture and cultural history.

Finland itself is very unique country especially for someone from the middle of Europe. It has about 168,000 lakes and 179,000 islands, of the total area 10% is lakes, rivers and ponds, and 78% forest. Finland is a top performer in numerous metrics of national performance, including education, economic competitiveness, civil liberties, quality of life, and human development. Finland has one of the world's most extensive welfare systems, one that guarantees decent living conditions for all residents, Finns, and non-citizens and very importantly, it is rated the least corrupt country in the world in the Corruption Perceptions Index

Helsinki is Finland's major center for politics, education, finance, culture, and research. It is exceptional in many ways: it is the world's northernmost metro area with over one million people as well as the northernmost capital of an EU member state. Called the "Daughter of the Baltic", Helsinki is on the tip of a peninsula and on 315 islands, has about 11,000 boat berths and possesses over 14,000 hectares of marine fishing waters adjacent to the Capital Region.



The Paasitorni foyer



and the Conference Hall

The nearly 110-year-old Paasitorni's historic and aesthetically pleasing setting, the functional spaces and the much-lauded catering created a strong foundation for the successful event. The

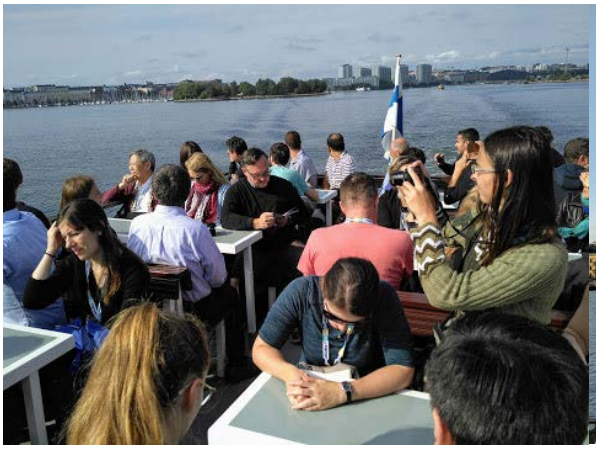
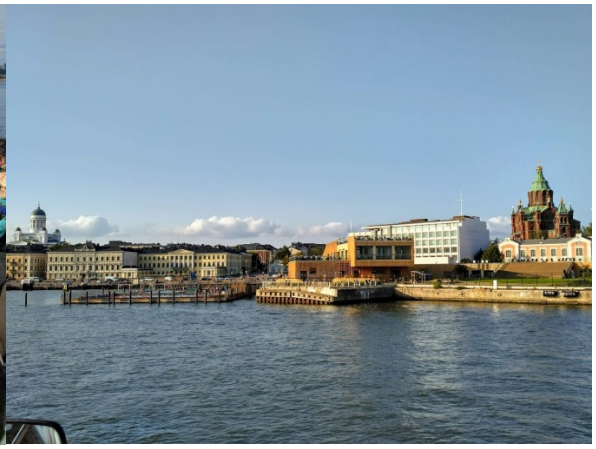
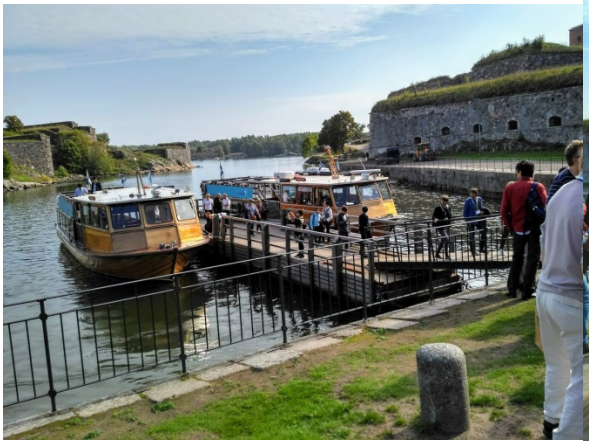
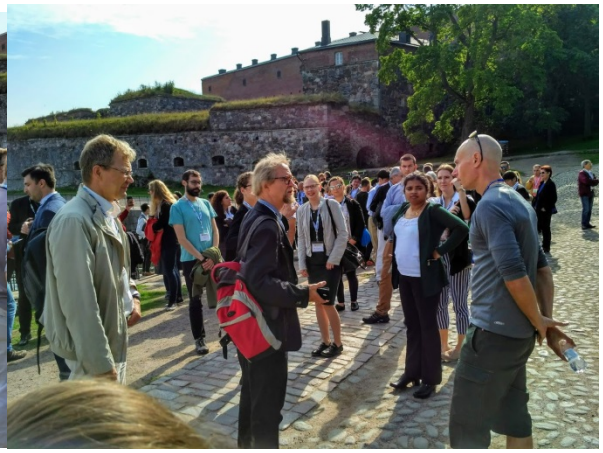
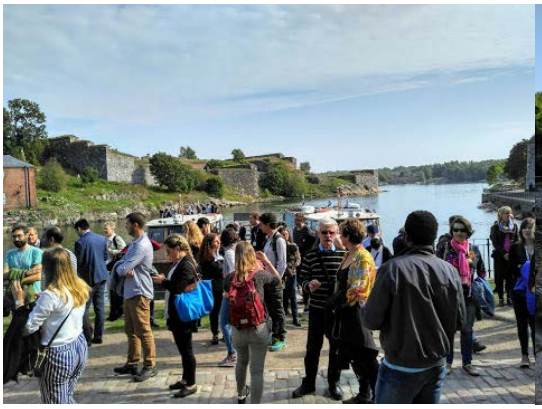
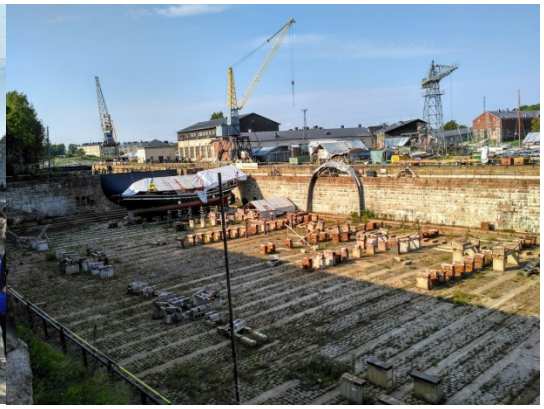
lobbies and foyers next to the conference room served as handy auxiliary areas for breaks and poster presentation. Cutting-edge technology was given everywhere in the building. The participants praised the four-day meeting in Paasitorni for, among other things, the quality of the catering and the excellent service. Some of the guests stayed conveniently under the same roof, in the distinctive Scandic Paasi hotel.

The row of social events of the 59th ICBL started with the Welcome reception on September 4th, Thursday evening after the Laurens van Deenen lecture at the Congress hall foyer and lobby. Delicious snacks and very good vines were served We met with our colleagues we didn't since last year's ICBL and had nice discussions. During coffee breaks which overlapped with Poster sessions we could choose from delicious cakes and great refreshments which made poster viewing very pleasant and friendly. Healthy and tasty, large choice lunches were served in the wonderful premise of Paasiravintola (Restaurant Paasi), carefully restored to the original 1920s style.

At Thursday afternoon there was a 5 hour excursion to the e Suomenlinna Sea Fortress one of the largest sea fortresses in the world. Suomenlinna ('Fortress of Finland') fortress is a UNESCO World Heritage Site, located approximately one kilometer off the coast from Helsinki. Suomenlinna is now one of the most popular tourist attractions in Helsinki as well as a popular picnicking spot for the city's inhabitants.

As a result of two wars in the beginning of the 18th century, the Swedish Empire lost all its provinces and towns on the eastern border to Russia. In order not to lose all of Finland, the Parliament decided to build a central fortress for the protection of the eastern parts of the empire. The construction work began in 1748 and was continued by army soldiers in the course of forty years, has a total of 8 km of fortified walls. It was the largest fortress of the Swedish Empire. Russia attacked Finland in 1808 and after a few weeks' siege the fortress was surrendered. Finland became a part of Russia and for the next 110 years the fortress served as a Russian fortress. On May 12th in 1918, the year after Finland gained independence, the Finnish flag was solemnly raised at the fortification and the fortress was renamed Suomenlinna ('Fortress of Finland') and served as a Finnish garrison for more than fifty years.

We were extremely lucky with the beautiful sunny weather! We went there by two ferries and when arriving several tourist guides were waiting for us. We made smaller groups and started to discover the island and the fortress with their guide.

The ship-builing yard

We visited the most important places and had the historical stories of that place also. At the end there was a nice surprise, free delicious cake was served and several of us had some local beer at a nice open-air sunny place.

We went back to the town on our own with regular ferries and enjoyed again the view of the town. Until the conference dinner we had some time and some of us walked to the large public plaza, Senate Square, next to Helsinki Cathedral. The square features many exceptional examples of neoclassical architecture. The main building of the University of Helsinki, the Government Palace and the National Library of Finland. The Helsinki Cathedral is an outstanding example of neoclassical-style architecture and features brilliant façades and impressive Corinthian pillars, magnificent Twelve Apostles on the church's roof, one of the largest collections of zinc sculptures in the world. These sculptures are about 3 meters tall and are located in the gables above the pillars.

With 3.9 million members, he Evangelical Lutheran Church of Finland is one of the largest Lutheran churches in the world and is also by far Finland's largest religious body; at the end of 2017, 70.9% of Finns were members of the church.

At Thursday evening the conference dinner took part in Restaurant Meripaviljonki/Sea Pavillon which was opened in 2015. Meripaviljonki is the first floating public building in Finland and technically innovative It is an eye-catching, modern addition to the Helsinki Workers' House. The place was just fabulous, and so was the food and wine served.

At the gala dinner Fritz Spener gave a nice speech about the "spirit" of the ICBL. Laszlo Vigh announced that the Steering Committee unanimously elected Christian Wolfrum as the new president of ICBL from 2019. Christian Wolfrum briefly introduced his future plans for the conference which included a stronger interaction with the Asian partners.

See you next year (June 17-21, 2019) in Tokyo!

SCIENTIFIC REPORT

ICBL 2018, Helsinki, Sept 4-7, 2018

The conference consisted of a traditional Laurens Van Deenen lecture on the night of Sept 4, and 6 scientific sessions during the 3 following days. The session topics were

I. Lipid-induced modulation of protein function
II. Inter-organelle lipid trafficking
III. Regulation of lipid synthesis, catabolism and storage
IV. Novel lipid probes for studying lipid transport and metabolism
V. Lipids in inflammation
VI. Lipids as markers for health and disease

and harboured a total of 14 invited speakers including the Van Deenen lecturer Rosalind Coleman (Chapel Hill, Univ. of North Carolina, US), as well as 20 oral presentations selected from the abstracts.

The Van Deenen lecturer Rosalind Coleman gave en excellent overview and historical sketch of the lines of research elucidating how diffrent lipid synthetic enzyme isoforms acting as parts of multienzyme assemblies channel their fatty acyl and lipid products to distinct metabolic pathways and subcellular destinations.

In session I, Christian Eggeling (Oxford, UK) described his group's work addressing nanoscale molecule clusters in membranes by super-resolution microscopy, fluorescence correlation spectroscopy (FCS), and giant plasma membrane vesicles, while Christophe Lamaze (Paris, France) reported data on the compartmentalization of interferon-gamma-receptor, the diffusion of which is controlled by membrane sphingolipids and F-actin. Kencheng Zhou (Helsinki) continued on the use of cross-linkable ceramide (Cer) to study the structure-function relationships in the Cer transporter LAPTM4B, reporting regulation of mTORC1 signaling by this protein. In the 2nd half of the session Mark Sansom (Oxford, UK) described progress in molecular dynamics simulations of membrane proteins such as Kir channels, Polycystin-2 and TRPV1 channel.

In session II Tim Levine (London, UK) gave an excellent overview of the vast variety of proteins that transport lipids, making use of his extensive bioinformatic analyses aimed at identifying such components in different organisms, while Bruno Mesmin (Valbonne, France) presented the latest data on the countercurrent transport of cholesterol and PI4P at ER-*trans*-Golgi contacts by OSBP, the functional interplay of OSBP with PI-4-kinases in the Golgi, and on the novel role of the N-terminal unsructured region of OSBP, which prevents the protein from packing too tightly at the ER-Golgi junctions. Cécile Bandet (Paris, France) showed interesting data on an important new role of ceramide transporter (CERT) in muscle insulin signaling under lipotoxic conditions.

In session III Gary Lewis (Toronto, Canada) focused on intestinal chylomicron assembly and secretion, and its regulation by insulin, bringing up new regulatory aspects of the process, including its manipulation by GLP-2 and triggering of intestinal lipid secretion by glucose bolus, which also impacts the chylomicron particle size. Toyoshi Fujimoto (Nagoya, Japan) introduced the concept of intranuclear lipid droplets (mainly in hepatocytes), how they are formed, which protein componts are found on their surface, and how they can be pharmacologically manipulated; The function of these intriguing

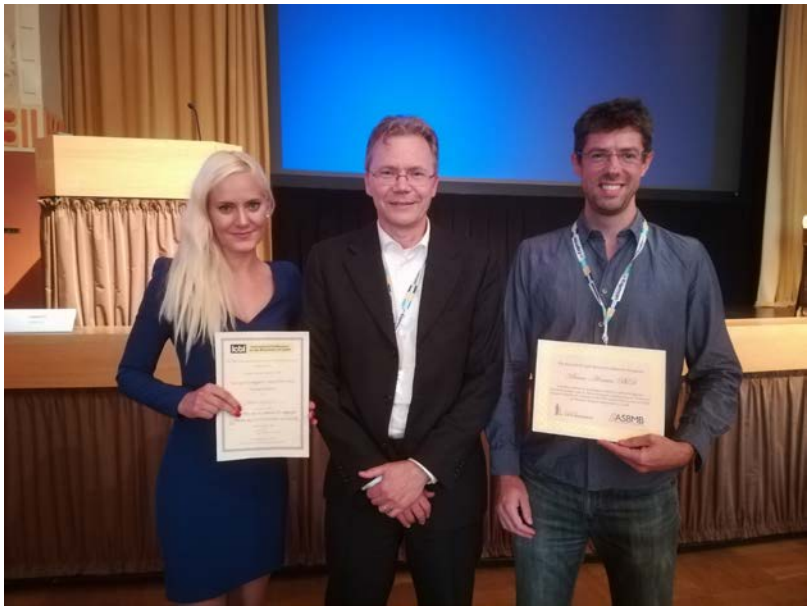
structures remains, however, as yet largely unknown. Andrew Brown (Sydney, Australia) reported on a conserved degron and cholesterol-responsive control of a key enzyme in cholesterol synthesis, squalene mono-oxygenase (SM).

In session IV Christer Ejsing (Odense, Denmark) described the remodeling of adipocyte lipidome during adipogenic differentiation, by approaches combining MS lipidomics with gene knock-outs and gene expression analyses. Nicolas Vitale (Strasbourg, France) reported on the importance of phosphatidic acid (PA) and the phospholipase Ds generating PA, for phagocytosis, and Shin-ya Morita (Otsu City, Japan) new enzymatic fluorometric methods for quantification of phospholipid classes. Luis Loura (Coimbra, Portugal) nicely outlined how the available lipid probes gauge and affect the structure of membranes, observations that definitely need to be considered with caution when using various lipid probes and interpreting data obtained by employing them.

In session V Charles Serhan (Harvard, US) gave an excellent overview of resolvins and specialized proresolving mediators (SPMs), and outlined progress in the design of agonists of the resolvin and SPM pathways for therapeutic use. The 2nd invited lecture in this session was given by Nicolas Flamand (Quebec City, Canada), who reported on endocannabinoids and their CB1 and CB2 receptors, CB2 receptor agonists being in clinical trials for autoimmune disorders such as osteoarthritis, lupus e. and Crohn's disease. Moreover, he showed data on 2-AG (endocannabinoid) hydrolases expressed in different cell types including leukocytes.

In the final session VI Markus Wenk (Singapore) focused on the intra-individual variability of the lipidome over time, analyzed in the Singapore Lipidomics Incubator (SLING) and the National University of Singapore (NUS), and how this could be made use of in future personalized medicine. Shinji Yokoyama (Chubu, Japan) reported that 2 apoA-II molecules can replace one apoA-I on the surface of HDL, apparently making the HDL metabolically less active; He showed data suggesting the the plasma LpA-I/A-II ratio does not correlate negatively with apoB like the concentration of LpA-I does. Maija Ruuth (Helsinki) presented new datra suggesting, based on an LDL aggregation assay, that PCSK9 inhibition not only reduces LDL-cholesterol but also improves the quality of LDL. Gabor Tigyi (Memphis, US) reported interesting findings on role of autotaxin-lysophosphatidic acid (LPA) axis in the cancer stem cell-tumor microenvironment interaction. Daniel Ory (St. Louis, US), gave the final invited talk on new diagnostic approaches and therapies of Niemann-Pick type C cholesterol/sphingolipid storage disorder.

The conference was finished by presentation of ICBL 2019, Tokyo, by Makoto Arita, and the awards. Vesa Olkkonen delivered the young investigator awards for the best oral (Maija Ruuth, Wihuri Research Institute, Helsinki) and poster (Nikolas Giannakis, Univ. of Debrecen, Hungary) presentations. Markus Wenk thereafter delivered the J. Lipid Res. Junior investigator award to Bruno Mesmin (Univ. of Nice Sophia Antipolis, France). Warmest congratulations to the winners!



Maija Ruuth (young ivestigator award for oral presentations), Vesa Olkkonen (organizer),

and Bruno Mesmin (JLR Junior investigator award)

Nikolas Giannakis (young investigator award for posters)

See you next year (June 17-21, 2019) in Tokyo!

Vesa Olkkonen, prof.
Chair of the Local Organizing Committee