

# **26th LipidForum Symposium 2011**

## **Nordic Forum for Lipid Research and Technology**

**Ålesund, Norway  
19-22 June 2011**

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Program for 26th LipidFORUM symposium 19-22 June 2011  
Ålesund, Norway

Sunday 19th June: Get-together at Radisson BLU Hotel, Ålesund  
kl. 19.00

Monday 20th June

Session 1: Lipids in metabolism and regulation

Chair persons: Ingrid Undeland and Ulf Hansson

0900-0915		Chair of the Lipidforum Board and Organising Committee: <b><u>Bente Torstensen</u></b> <i>Welcome</i>	
0915-0945	SI-I01	<i>Invited speaker:</i> <b><u>Artemis P. Simopoulos</u></b> n-6 Fatty Acid Intake vs n-3 Fatty Acids Impact on Metabolic Health	15
0945-1000	SI-O01	<b><u>Lars I Hellgren</u></b> , Lei Hou & Mette Olaf Nielsen Gestational and early postnatal nutrition programs fatty acid composition in the tissue at adulthood, in sheep-model of fetal programming	16
1000-1015	SI-O02	<i>Young Scientist Award Winner:</i> <b><u>Tue Drachmann</u></b> , Mathias C. F. Andersen, Mads H. Clausen, Lars. I. Hellgren Effects of butterfat and phytanic acid, on metabolic function compared to MUFA and PUFA based diets in obese mice	17
1015-1030	SI-O03	<i>Young Scientist Award Winner:</i> <b><u>You Zhou</u></b> and Vesa M. Olkkonen Oxysterol binding proteins in adipose tissue-Role in fat cell differentiation	18
1030-1100		<i>Coffee break</i>	
1100-1130	SI-I02	<i>Invited Speaker:</i> <b><u>Asim K. Duttaroy</u></b> Effects of n-3 LCPUFAs on human feto-placental growth and development	19
1130-1145	SI-O04	<b><u>Sanjay Basak</u></b> and Asim K. Duttaroy Leptin stimulates fatty acid uptake and tubule formation in first trimester trophoblastic cells, HTR-8/SVneo	20
1145-1245		<i>Lunch at the hotel</i>	

## Session 2: Lipids in life style diseases

Chair persons: Lars Hellgren and Jon Aulie

1245-1315	S2-I03	<i>Invited speaker:</i> <u>Lise Madsen</u> and Karsten Kristiansen Polyunsaturated fatty acids and regulation of obesity	21
1315-1345	S2-O05	<u>Karsten Kristiansen</u> Oxygenated polyunsaturated fatty acids as regulators of adipose tissue development and energy homeostasis	22
1345-1400	S2-O06	<i>Young Scientist Award Winner:</i> <u>Anita R. Alvheim</u> , Douglas Osei-Hyiaman, Yuhong Lin, Robert Pawlosky, Lise Madsen, Karsten Kristiansen, Marian K. Malde, Joseph R. Hibbeln Dietary linoleic acid contributes to obesity through excessive endocannabinoid signalling	23
1400-1415	S2-O07	<i>Young Scientist Award Winner:</i> <u>Lara Bjorgvinsdottir</u> , Olafur S. Indridason, David O Arnar, Ragnhildur Heidarsdottir, Gudrun V. Skuladottir Association of n-3 and n-6 long-chain polyunsaturated fatty acids in red blood cells and risk of atrial fibrillation following coronary artery bypass graft surgery	24
1415-1430	S2-O08	Jennifer E. Lambert, Vincent G. Bain, Edmond A. Ryan, Alan B.R. Thomson and <u>Michael T. Clandinin</u> Compromised PUFA status and elevated lipogenesis in people with liver failure: potential for dietary PUFA intervention?	25
1430-1500		<i>Coffee break</i>	
1500-1515	S2-O09	<u>Sofie C. Remø</u> , E.M. Hevrøy, P.A. Olsvik, R. Fontanillas, O. Breck and R. Waagbø Metabolic and welfare aspects of dietary plant oil and histidine levels in Atlantic salmon smolt in seawater	26
1515-1530	S2-O10	<i>Young Scientist Award Winner:</i> <u>AnnaLotta Schiller Vestergren</u> , S. Trattner, J. Mraz, J. Pickova Effects of bioactive compounds on lipid metabolism in Atlantic salmon hepatocytes	27

1530-1545	S2-O11	<p><b><u>Nina Liland, Grethe Rosenlund, Jan Idar Hjelle &amp; Bente E. Torstensen</u></b>  A diet high in phytosterols and low in cholesterol affects the cholesterol and lipid metabolism in farmed Atlantic salmon</p>	28
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1600		<p><i>Boat Trip Around “Runde” Bird Mountain and visit to Runde Miljøsentor (including food and beverage)</i></p>	
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<b>Tuesday 21st June</b>	<b>Chair persons:  Arnar Halldorsson and Olav Thorstad</b>
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0900-0930	I04	<p><i>Invited Speaker:</i>  <b><u>Michael A Crawford</u></b>  n-3 LCPUFAs on human fetoplacental growth and development: the global crisis in mental ill health</p>	29
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<b>Session 3:  Production of fatty acids for pharma- and nutraceutical use</b>	
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0930-1000	S3-I05	<p><i>Invited Speaker:</i>  <b><u>Trond Vidar Hansen</u></b>  Resolvins: oxidized metabolites of EPA and DHA. Potential applications as lead compounds in drug discovery</p>	30
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1000-1015	S3-O12	<p><b><u>Yngve Stenström</u></b>  Natural syntheses based on naturally occurring fatty acids</p>	31
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1015-1030	S3-O13	<p><b><u>Lars Luellwitz., Hoffmann, D., Frobel J., Grunow B., Gebert, M., Kruse, C.</u></b>  A novel fish cell line converts n-3 polyunsaturated fatty acids into n-3 highly unsaturated fatty acids in vitro</p>	32
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1030-1100		<p><i>Coffee break</i></p>	
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1100-1115	S3-O14	<p><b><u>Hilde Merete Næss, Ellen Merete Kolderup</u></b>  Challenges related to non typical pharmaceutical analyses to be used for pharmaceuticals</p>	33
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1115-1130	S3-O15	<p><b><u>Ana Karina Carvajal, Rasa Slizyte, Ivar Storrø and Marit Aursand</u></b>  Production of high quality oil from fresh herring rest raw material by using a mobile production plant</p>	34
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1130-1145	S3-O16	<b><u>Inger Beate Standal</u>, Ana Karina Carvajal, Elham Abbasi, Ivar Storrø, Marit Aursand</b> High Resolution NMR as an analytical tool to study enzymatic modification of lipids	35
1145-1200	S3-O17	<b><u>Iren Stoknes</u></b> New omega3-products from herring	36
1200-1215	S3-O18	<b><u>Kangming Ma</u></b> Infrared methodology for rapid EPA/DHA analysis using patented technology	37
1215-1230	S3-O19	<b><u>Ivar Storrø</u></b> Lipid oxidation - the beginning	38
1230-1330		<i>Lunch at the Hotel</i>	

## Session 4: Bioavailability of lipids; as supplements or food

Chair persons:

Guðrún V. Skúladóttir and Bente E. Torstensen

1330-1400	S4-I06	<b><i>Invited Speaker:</i></b> <b><u>Heinz Rupp</u></b> Potential health effects of omega-3 HUFA: impact of the type of ester and quality (VOCs by SPME/GC-MS)	39
1400-1415	S4-O20	<b><u>Tormod Bjørkkjær</u>, Lisbeth Dahl, Ingvild Eide Graff, Samar Basu, Rune Blomhoff &amp; Livar Frøyland</b> Comparison of the impact of eating salmon, omega-3-fruit juice or cod liver oil capsules in healthy volunteers	41
1415-1430	S4-O21	<b><u>Ingrid Undeland</u>, Marie Alminger &amp; Karin Larsson</b> Oxidation of marine n-3 PUFA during an in vitro gastrointestinal digestion	42
1430-1445	S4-O22	<b><u>Eszter Mandák</u> and Laura Nyström</b> Seryl ferulate bioaccessibility from different types of raw and cooked rice	43
1445-1500	S4-O23	<b>Carlos D. Magnusson and <u>Gudmundur G. Haraldsson</u></b> Reversely Structured Acylglycerol Lipids Possessing n-3 PUFA at Terminal Positions	44
1500-1530		<i>Coffee break</i>	

1530-1545	S4-O24	<u>Asgeir Sæbø</u> Emerging denominators for production of omega-3 supplements call for a shift to high DHA products.	45
1545-1600	S4-O25	<u>Runar Vige, Yan Qin, Siver Moestue, Svein-Olaf Hustvedt</u> An open-label, single dose study to assess the plasma kinetics of Eicosapentaenoic acid and Docosahexaenoic acid following an oral dose of 4 g omega-3-acid ethyl esters 90 (Omacor®)	46
1600-1615	S4-O26	<u>Monica Sanden, Ingunn Stubhaug, Marc HG Berntssen, Øyvind Lie and Bente E Torstensen</u> Atlantic salmon ( <i>Salmo salar</i> L.) as a net producer of long chain marine omega-3 fatty acids	47
1615-1630	S4-O27	<u>A. Meniconi, A.T. Boam and P. Skavaas</u> Separation of oil components by advanced membranes. Possibilities and advantages	48
1630-1645	S4-O28	<u>Sabeena Farvin Koduvayur Habeebullah and Charlotte Jacobsen</u> Lipid Characterization and Antioxidant Activity of Selected Species of Seaweeds from Danish Coast	49
1700-1800		<i>LipidForum General Assembly</i>	
1900		<i>Symposium dinner</i>	

**Wednesday 22nd**      Chair persons:  
Karsten Nielsen and Ingrid Undeland

0900-0930	I07	<i>Invited Speaker:</i> <u>Jørn Dyerberg</u> Marine Omega-3 Fatty Acids – the beginnings: The omega-3 story from Greenland	50
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## Session 5: Lipids and food safety

0930-1000	S5-I08	<i>Invited Speaker:</i> <u>Livar Frøyland</u> Safety assessment of marine oils for human consumption	51
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1000-1030	S5-I09	<i>Invited Speaker:</i> <b>Gjermund Vogt</b> , T. Thorkildsen, I. Otterstad, J.E. Haugen and A. Nilsson Oxidation status in omega-3 oils in the Norwegian health care market	<b>52</b>
1030-1100		<i>Coffe break</i>	
1100-1115	S5-O29	<b>Camilla Elise Jørgensen</b> , Bjørg Egelanddal, Berit Nordvi, Milena Bjelanovic, Jon Volden Emulsion model system for determination of lipid and protein oxidation	<b>53</b>
1115-1130	S5-O30	<b>Stine Grimmer</b> , Marijana Todorovic, Marina Lilac, Gjermund Vogt and Bente Ruyter Potential health effects of oxidised marine oil enriched with Omega-3.	<b>54</b>
1130-1145	S5-O31	<b>Inger Ottestad</b> , Gjermund Vogt, Kjetil Retterstøl, Mari Myhrstad John-Erik Haugen, Astrid Nilsson, Gitte Ravn-Haren, Berit Nordvi, Kirsti Wettre Brønner, Lene Frost Andersen, Kirsten B. Holven and Stine M. Ulven Intake of oxidized cod liver oil and health effects. A randomized control trial.	<b>55</b>
1145-1200	S5-O32	<b>Vera Kristinova</b> , Turid Rustad and Ivar Storrø The role of added compounds in oxidation of marine lipids	<b>56</b>
1200-1215	S5-O33	<b>Anna Frisenfeldt Horn</b> , Nina Skall Nielsen, Ulf Andersen, Louise Helene Søgaard, Andy Horsewell & Charlotte Jacobsen Lipid oxidation in omega-3 emulsions prepared with milk proteins	<b>57</b>
1215-1230	S5-O34	<b>Åge Oterhals</b> and Bjørn Kvamme Optimization of an oil leaching process to reduce the level of dioxins and PCBs in fishmeal	<b>58</b>
1230-1245	S5-O35	<b>Rasinger JD</b> , Carroll TS, Reffatto V, Maranghi F, Tassinari R, Haave M, Lundebye A-K, Hogstrand C Interactions between nutrients and persistent organic pollutants in mice fed spiked fish-based or casein-based diets	<b>59</b>
1245-1300		<i>Closing remarks and farewell.</i>	
1300-1400		<i>Lunch at the Hotel</i>	



## Posters

- P01 Eva Falch, Bente Kirkhus, Amandine Lamglait, Karl-Erik Eilertsen, Trond Haider, Hogne Vik, Nils Hoem, Tor-Arne Hagve, Samar Basu, Elisabeth Olsen, Ingebjørg Seljeftot, Lena Nyberg, Elisabeth Elind, Stine M. Ulven  
Bioavailability of marine n-3 fatty acids from enriched food products and fish oil supplement in healthy humans. **63**
- P02 Kristi Ekrann Aarak, Charlotte Ramstad Kleiveland, Tor E. Lea  
Polyunsaturated fatty acids and effects on mesenchymal stem cells **64**
- P03 Anita R. Alvheim, Joseph R. Hibbeln, Marian Kjellefold Malde, Bente E. Torstensen  
Dietary linoleic acid increases endocannabinoids 2-AG and AEA and induces weight gain: a comparative study in Atlantic salmon **65**
- P04 Harald Breivik, Olav Thorstad  
Krill phospholipid process **66**
- P05 Bodil Bjørndal, Tore Grimstad, Daniel Cacabelos, Natalya Vigerust, Trygve Hausken, Rolf Berge  
Anti-inflammatory and antioxidative effects of krill oil in an experimental model of colitis in Wistar rats **67**