Program for the 11th International Conference on Homocysteine & One-Carbon Metabolism 2017

SUNDAY 14 May 2017
14:00-16:30  Registration and free entrance at the Aros Arts Museum, Aros Allé 2, DK-8000 Aarhus C

MONDAY 15 May 2017
08:00-09:00  Registration at the Lake Auditorium Reception

SESSION 1: Challenging paradigms and conventions
Plenary session. Conference room: Lake Auditorium Per Kirkeby
Chaired by Ralph Green and Jacob Selhub

09:00-09:20  Welcome by Johan F. H. Arendt and Eva Greibe, Organizers, Denmark

09:20-10:05  Black holes in the universe of vitamin B12
Speaker: Ebba Nexo, Guest of honor, Aarhus, Denmark – Abstract O1

10:05-10:30 Elevated vitamin B12 levels – overlooked or overrated?
Speaker: Johan F. H. Arendt, Aarhus, Denmark – Abstract O2

10:30-10:50  Morning coffee break – Lake Auditorium Hallways/William Scharff Auditorium

SESSION 2: B-vitamins and genetics – what can we learn from rare genetic disorders?
Plenary session. Conference room: Lake Auditorium Per Kirkeby
Chaired by Henk Blom and Jean-Louis Gueant

10:50-11:15  From the clinic to the mouse room - Lessons learned in the regulation of folate transport
Speaker: Richard Finnell, Texas, USA – Abstract O3

11:15-11:40 Surprises from the study of patients with inherited disorders of cobalamin metabolism
Speaker: David Rosenblatt, Montreal, Canada – Abstract O4

SESSION 3: Consensus guidelines for inherited disorders
Plenary session. Conference room: Lake Auditorium Per Kirkeby
Chaired by David Rosenblatt and Brian Fowler

11:40-12:05 European network and registry for homocystinurias and methylation defects (E-HOD)
Speaker: Henk Blom, Freiburg, Germany – Abstract O5

12:05 –12:30 EHOD in practice – a South American physician’s perspective on the "placebo effect" of rare disease registries
Speaker: Ida V. D. Schwartz, Porto Alegre, Brazil – Abstract O6
12:30-13:40  Lunch buffet – Cafeteria for Social and Political Sciences

**SESSION 4: Defining diagnoses – are biochemical cut-offs ancient history?**
Plenary session. Conference room: Lake Auditorium Per Kirkeby
Chaired by Ebba Nexo and Sally Stabler

13:40-14:05  Combined indicator of B12 deficiency (cB12). Optimized sequential application of individual biomarkers and their combinations
Speaker: Sergey Fedosov, Aarhus, Denmark – Abstract O7

14:05-14:30  Assay of cobalamin analogues in blood and animal tissues with potential contribution to cobalamin values
Speaker: Sally Stabler, Colorado, USA – Abstract O8

14:30-14:55  One-carbon metabolism and vitamin nutritional status – metabolomic assessment in health and disease states
Speaker: Jesse Gregory, Florida, USA – Abstract O9

14:55-15:00  Vitamin B12 and folate status of older Irish adults: findings from TILDA
Speaker: Eamon Laird, Dublin, Ireland – Abstract 10

15:00-15:30  Afternoon coffee break – Lake Auditorium Hallways/William Scharff Auditorium

**SESSION 5: B vitamins and life-style factors**
Parallel session. Conference room: Lake Auditorium Jeppe Vontilius
Chaired by Anne Molloy and Shantanu Sengupta

15:30-15:55  One-carbon metabolism and fetal programming
Speaker: Chittaranjan Yajnik, Pune, India – Abstract O11

15:55-16:10  Markers of folate and vitamin B12 status are associated with insulin resistance and metabolic syndrome severity in morbidly obese patients
Speaker: Jean-Louis Gueant, Nancy, France – Abstract O12

16:10-16:15  Profiling of folates and related sulfur amino acids in SHR rat model of metabolic syndrome
Speaker: Victor Kozich, Prague, Czech Republic – Abstract O13

16:15-16:20  Genetic variation in one-carbon metabolism, prenatal air pollution exposure, and cardiovascular phenotypes in children
Speaker: Caitlin Howe, California, USA – Abstract O14

16:20-16:25  The effect of folic acid supplementation on insulin sensitivity and type 2 diabetes – A meta-analysis of randomized controlled trials
Speaker: Mads Lind, Copenhagen, Denmark – Abstract O15
SESSION 6: Animal models for B vitamin-related pathologies
Parallel session. Conference room: Lake Auditorium Merete Barker
Chaired by Richard Finnell and Joshua Miller

15:30-15:55 Role of folate receptor antibodies in neuro-developmental disorders
Speaker: Edward Quadros, New York, USA – Abstract O16

15:55-16:10 Successful generation of a neuronal conditional Lmbrd1 knockout mouse
Speaker: Frank Rutsch, Muenster, Germany – Abstract O17

16:10-16:15 Engineering and characterization of an enzyme replacement therapy for classical homocystinuria
Speaker: Tomas Majtan, Colorado, USA – Abstract O18

16:15-16:20 Transcriptional repression of male-specific MUP20 expression in female mice is relieved by the inactivation of cystathionine-β synthase gene
Speaker: Hieronim Jakubowski, New Jersey, USA – Abstract O19

16:20-16:25 One-Carbon metabolism and neural tube closure defects
Speaker: Nicholas Greene, London, UK – Abstract O20

SOCIAL EVENT:
17:30-19:00 Welcome reception
City Hall, Soender Allé 2, DK-8000 Aarhus C

TUESDAY 16 May 2017
SESSION 7: Nutrition during pregnancy and infancy – pathology and physiology
Plenary session. Conference room: Lake Auditorium Per Kirkeby
Chaired by Eva Greibe and Alex Brito

09:00-09:25 B vitamin status in non-pregnant, pregnant and lactating mothers and their infants
Speaker: Anne-Lise Bjorke-Monsen, Bergen, Norway – Abstract O21

09:25-09:50 Parental one carbon metabolism, pregnancy outcome and child development and health
Speaker: Michelle Murphy, Reus, Spain – Abstract O22

09:50-10:05 Utility of newborn screening markers to diagnose newborns at risk of vitamin B-12 deficiency second to maternal vitamin B-12 deficiency
Speaker: Theresa Schroder, Vancouver, Canada – Abstract O23

10:05-10:10 Breast milk levels of one-carbon metabolites and infant postnatal growth
Speaker: Carles Lerin, Barcelona, Spain – Abstract O24

10:10-10:15 Higher cord blood unmetabolized folic acid (PGA) levels are associated with the development of food allergy in children
Speaker: Jacob Selhub, Virginia, USA – Abstract O25

10:15-10:30 The effect of folate on vitamin B12 depletion-induced inhibition of nuclear thymidylate biosynthesis and neural tube defects
SESSION 8: Molecular and cellular mechanisms of B vitamins
Parallel session. Conference room: Lake Auditorium Jeppe Vontilius
Chaired by Viktor Kozich and Sergey Fedosov

11:00-11:25 Cellular stress is a key actor of a common scenario, which participates to the high variability of neurological and visceral manifestations of cobalamin disorders
Speaker: Jean-Louis Gueant, Nancy, France – Abstract O27

11:25-11:50 Molecular characterization of the cblC disease reveals new pathways in pathogenesis
Speaker: Luciana Hannibal, Freiburg, Germany – Abstract O28

11:50-12:05 Methionine synthase and methionine synthase reductase interact with MMACHC and with MMADHC
Speaker: David Coelho, Nancy, France – Abstract O29

12:05-12:10 Arsenic Targets Folate-dependent de novo Thymidylate Synthesis in the Nucleus Leading to Neural Tube Defects
Speaker: Patrick Stover, New York, USA – Abstract O30

SESSION 9: Nutrition and disease
Parallel session. Conference room: Lake Auditorium Merete Barker
Chaired by Sally Stabler and Barry Shane

11:00-11:45 New perspectives on vitamin B-12 deficiency in low income populations; assessment and prevalence
Speakers: Lindsey Allen and Alex Brito, California, USA – Abstract O32

11:45-12:00 Cow milk, buffalo milk or vitamin pills for improving vitamin B12 status: A four week prospective study
Speaker: Sadanand Naik, Pune, India – Abstract O33

12:00-12:15 Genetic epidemiology of static and functional biomarkers of vitamin B12 status in older adults
Speaker: Kourosh Ahmadi, Surrey, UK – Abstract O34

12:15-12:20 Vitamin B12 deficiency affects distinct pathways in males and females
Speaker: Swati Varshney, New Delhi, India – Abstract O35

12:20-13:30 Dine with a Senior Researcher – Cafeteria for Social and Political Sciences
Chair: Ebba Nexo, Aarhus, Denmark
SESSION 10: Poster session 1
Lake Auditorium Hallways
Chaired by Michelle Murphy, Alex Brito, Ebba Nexo and Richard Finnell

13:30-14:30 Poster session 1

14:30-15:00 Afternoon coffee break – Lake Auditorium Hallways/William Scharff Auditorium

SESSION 11: Cognition, dementia, and B vitamins – animal models, trials and epidemiology
Plenary session. Conference room: Lake Auditorium Per Kirkeby
Chaired by Johan F. H. Arendt and Jean-Louis Gueant

15:00-15:25 How does the brain mediate the effects of low vitamin B12 and raised homocysteine on cognition?
Speaker: David Smith, Oxford, UK - Abstract O36

15:25-15:50 Homocysteine and the Brain-Body divide
Speaker: Aron Troen, Jerusalem, Israel - Abstract O37

15:50-16:05 Behavioral alterations associated with vitamin B12 deficiency in the TCblR/CD320 KO mouse
Speaker: Jeffrey Sequiera, New York, USA - Abstract O38

16:05-16:20 Vitamin B12, folate, and sulfur amino-acids as risk factors for dementia and cognitive decline: a longitudinal population based study
Speaker: Babak Hooshmand, Stockholm, Sweden – Abstract O39

16:20-16:25 Folate receptor alpha autoimmunity in low-functioning autism and response to folinic acid treatment
Speaker: Vincent Ramaekers, Liége, Belgium – Abstract O40

16:25-16:30 Plasma and cerebrospinal fluid biomarkers of the methylation cycle in cognitively normal and mild dementia of the Alzheimer type
Speaker: Teodoro Bottiglieri, Texas, USA – Abstract O41

WEDNESDAY 17 May 2017
SESSION 12: B vitamins and cancer
Plenary session. Conference room: Lake Auditorium Per Kirkeby
Chaired by David Smith and Ottar Nygård

09:00-09:40 Challenges to evaluating evidence of risks from high intakes of folic acid
Speaker: Abee L. Boyles, North Carolina, USA – Abstract O42

09:40-09:55 Impaired functional vitamin B6 status is associated with increased risk of lung cancer in the Lung Cancer Cohort Consortium (LC3)
Speaker: Despoina Theofylaktopoulou, Bergen, Norway – Abstract O43
09:55-10:10  Why Cancer Stem Cells are methionine dependent?  
Speaker: Racha Zgheib, Nancy, France – Abstract O44

10:10-10:25  Metabolic changes in GNMT knockout mice during progression from steatosis to hepatocellular carcinoma.  
Speaker: Natalia I. Krupenko, North Carolina, USA – Abstract O45

10:25-10:55  Morning coffee break – Lake Auditorium Hallways/William Scharff Auditorium

SESSION 13: Bioavailability of B vitamins  
Parallel session. Conference room: Lake Auditorium Jeppe Vontilius  
Chaired by Ralph Green and Michelle Murphy

10:55-11:20  Principle for studying the potency of the different vitamin D active compounds – usable in the vitamin B community?  
Speaker: Jette Jakobsen, Copenhagen, Denmark – Abstract O46

11:20-11:45  B12 in milk, its protein complexes and bioavailability  
Speaker: Sergey Fedosov, Aarhus, Denmark – Abstract O47

11:45-12:00  Development and validation of the concept of personalized folate supplementation to achieve protective RBC-folate concentrations in young women  
Speaker: Klaus Pietrzik, Bonn, Germany – Abstract O48

12:00-12:15  Bovine transcobalamin enhances in vitro intestinal absorption of cobalamin in a receptor-associated protein sensitive manner  
Speaker: Christian Juul, Aarhus, Denmark – Abstract O51

12:15-12:20  Vitamin B12 from dairy sources: potential benefits for bone health; Findings from the TUDA Study  
Speaker: Eamon Laird, Dublin, Ireland – Abstract O50

SESSION 14: Betaine and Choline – the link to B vitamins and homocysteine  
Parallel session. Conference room: Lake Auditorium Merete Barker  
Chaired by Steven Zeisel and Viktor Kozich

10:55-11:40  How do perturbations in choline metabolism cause altered gene expression?  
Speaker: Steven Zeisel, North Carolina, USA – Abstract O51

11:40-11:55  Results from a folic acid and creatine supplementation trial in Bangladesh: Differences in treatment effect on arsenic methylation, blood arsenic, and homocysteine by baseline choline and betaine status  
Speaker: Anne Bozack, New York, USA – Abstract O52

11:55-12:10  Serum betaine and total vitamin B-12, but not folate, concentrations are negative predictors of total homocysteine concentration in Canadian pregnant women of South Asian and Caucasian ethnicity  
Speaker: Maria Fernanda Mujica-Coopman, Vancouver, Canada – Abstract O53
12:10-12:15  A Systematic Review and Meta-analysis on the efficacy of Betaine in the treatment of Cystathione B-synthase deficient patients who are non-responsive to pyridoxine
Speaker: Alicia Dorneles Dornelles, Porto Alegre, Brazil – Abstract O54

12:15-12:20  The Effects of Betaine on Brain and Liver in Methionine & Choline Deficient Rats
Speaker: Nur Abu Ahmad, Jerusalem, Israel – Abstract O55

12:20-13:30  Lunch buffet – Cafeteria for Social and Political Sciences

SESSION 15: Poster session 2
Lake Auditorium Hallways
Chaired by Joshua Miller, Luciana Hannibal, Lindsay Allen and Barry Shane

13:30-14:30  Poster session 2

14:30-15:00  Afternoon coffee break - Lake Auditorium Hallways/William Scharff Auditorium

SESSION 16: B vitamins and treatment
Plenary session. Conference room: Lake Auditorium Per Kirkeby
Chaired by Johan F. H. Arendt and Anne Molloy

15:00-15:25  Cyano-B12 versus hydroxo-B12: New insights on transport and accumulation
Speaker: Eva Greibe, Aarhus, Denmark - Abstract O56

15:25-15:50  Bacterial folates provide an exogeneous signal for C. elegans germline stem cell proliferation
Speaker: Jacob Selhub, Massachusetts, USA - Abstract O57

15:50-16:05  Vitamin B12 status and absorption before and after bariatric surgery: A prospective study
Speaker: Linda Kornerup, Aarhus, Denmark – Abstract O58

16:05-16:20  Paraoxonase 1 protects against homocysteine-thiolactone accumulation in humans
Speaker: Joanna Perla-Kajan, Poznan, Poland – Abstract O59

16:20-16:25  The role of homocysteine and B vitamins in telomere length: results from the cross-sectional and interventional trials
Speaker: Irene Pusceddu, Saarland, Germany – Abstract O60

16:25-16:30  Development of an Enzyme Therapeutic for Classical Homocystinuria
Speaker: Matthew Bonem, Texas, USA – Abstract O61

SOCIAL EVENT:
19:00- Dinner party
Centralvaerkstedet, Vaerkmestergade 7-9, DK-8000 Aarhus C
(coaches will be arranged)
Festive speaker: Ralph Green, California, USA
THURSDAY 18 May 2017
SESSION 17: B vitamins, homocysteine and cardiovascular disease
Plenary session. Conference room: Lake Auditorium Per Kirkeby
Chaired by Jacob Selhub and David Smith

09:30-09:55 Lowering homocysteine levels to prevent stroke: unraveling the complexity of the evidence
Speaker: J. David Spence, London, Canada – Abstract O62

09:55-10:20 Plasma Homocysteine, B vitamin treatment and cardiovascular disease: still relevant to study?
Speaker: Ottar Nygård, Bergen, Norway – Abstract O63

10:20-10:35 Studies on the influence of folic acid, riboflavin, and the methylenetetrahydrofolate reductase (MTHFR) C677T polymorphism on nitric oxide production and blood pressure
Speaker: Joshua Miller, New Jersey, USA – Abstract O64

10:35-10:50 Neopterin as an effect modifier of the cardiovascular risk associated with total homocysteine – a two-cohort study of patients with coronary heart disease
Speakers: Espen Bjørnestad and Robert Borsholm, Bergen, Norway – Abstract O65

10:50-11:15 Morning coffee break – Lake Auditorium Hallways/William Scharff Auditorium

SESSION 18: Future for the conference and research society
Plenary session. Conference room: Lake Auditorium Per Kirkeby
Chaired by David Rosenblatt and Henk Blom

11:15-11:40 The International Conference on Homocysteine and One-Carbon Metabolism: Quo Vadis
Speaker: Brian Fowler, Basel, Switzerland - Abstract O66

11:40-12:05 The Pernicious Anaemia Society
Speaker: Martyn Hooper, Founder & Chair of PAS – Abstract O67

12:05-12:30 Discussion

12:30-13:00 Closing remarks and announcing oral and poster prize winners
Johan F. H. Arendt, Eva Greibe, Ebba Nexo

13:00 - Lunch boxes for departure – Lake Auditorium Hallways