Preliminary program

Medical School (Faculté de Médecine), University of Lorraine, Nancy
Conferences: Amphitheater Lepois
Posters: permanent exhibition in Salle Bagard

<table>
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<th>Tuesday</th>
<th>7th July 2015</th>
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<tr>
<td>14h00-19h00</td>
<td>Registration (Park Inn Hotel, Nancy)</td>
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<tr>
<td>19h00</td>
<td>Welcome ceremony (City Hall of Nancy)</td>
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<tr>
<td>19h00-20h00</td>
<td>Inaugural conference: Lessons in biology from patients with inherited disorders of vitamin B₁₂ metabolism&lt;br&gt;D.S. Rosenblatt, honorary president (Montreal, Canada)</td>
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<td>20h00-21h00</td>
<td>Cocktail</td>
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<th>Wednesday</th>
<th>8th July 2015</th>
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<tr>
<td>Morning</td>
<td>9:00-9:30. Plenary lecture: CBS News: Structure, Regulation and Enzyme Replacement Therapy.&lt;br&gt;J.P. Kraus (Aurora, United States)</td>
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<td>Plenary sessions</td>
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<td>9:30-11:00. Session 1: Enzymes and co-enzymes of the one carbon metabolism: the mechanistic interplay and alternative reactions&lt;br&gt;Chairs: J.P. Kraus and W. Kruger&lt;br&gt;Conference: Promiscuity of enzymes in sulfur amino acid metabolism: hydrogen sulfide production in homocystinurias&lt;br&gt;V. Kožich (Prague, Czech Republic)&lt;br&gt;Conference: Investigations focused on the methionine synthase interactome provide novel mechanistic insights about the intracellular metabolism of vitamin B₁₂&lt;br&gt;D. Coelho (Nancy, France)</td>
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<td>Oral communications</td>
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<td>Allosteric regulation of cystathionine beta-synthase and ligand-mediated stabilization of its regulatory domain –&lt;br&gt;T. Majtan (Aurora, United States)&lt;br&gt;Visualization of a B₁₂-dependent enzyme with its G-protein chaperone indicates molecular mechanisms of methylmalonic aciduria&lt;br&gt;M. Jost (Ann Arbor, United States)</td>
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<td>Coffee Break</td>
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11:20-12:50. Session 2: Metabolic, molecular and cellular consequences of hyperhomocysteinemia and folate and vitamin B12 deficiencies

**Chairs:** J.L. Guéant and V. Kožich

Conference: Influence of folate deficiency on brain development and function: the rat model of folate receptor autoantibodies

**E.V. Quadros. (New-York, United States)**

**Oral communications**

Understanding the role of vitamin B12 deficiency in de novo thymidylate biosynthesis.

**A.M. Palmer (New York, United States)**

Metabolomics reveals new pathways and candidate biomarkers of vitamin B12 status, effects of B12 on myelinated peripheral nerve conduction and interaction with folate status

**A. Brito (California, United States)**

Impact of elevated levels of plasma homocysteine and impaired DNA repair in a mouse model of vascular cognitive impairment

**N.M. Jadavji (Berlin, Germany)**

Methyl donor deficiency impairs differentiation of pre-osteoblasts through disruption of functional interaction between peroxisome proliferator-activated receptor-gamma coactivator-1 alpha and vitamin D receptor

**E. Feigerlova (Nancy, France)**

Lunch

**Afternoon Parallel sessions**

14:00-15:30. Session 3: Metabolic, cellular and tissue compartments of the one carbon metabolism

**Chairs:** T. Garrow and N. Janel

Conference: In search of a common pathway for folic acid-responsive neural tube defects and cancer.

**P.J. Stover (New York, United States)**

**Oral communications**

MPV17 Mitochondrial Inner Membrane Protein Loss-of-Function Causes MDS and Altered One-Carbon Metabolism

**J. Alonzo (New York, United States)**

Methyl deficient diet promotes colitis and SIRT1-mediated endoplasmic reticulum stress

**H. Melhem (Nancy, France)**

S-Adenosylhomocysteine promotes endothelial activation through NF-κB activation

**M. Barroso (Lisbon, Portugal and Boston, United States)**

Interplay between folate, S-adenosylhomocysteine and protein methylation in human endothelial cells: the importance of methionine availability

**R. Castro (Lisbon, Portugal)**

14:00-15:30. Session 4: Enzymes of the one carbon metabolism: lessons from genetic diseases and genetic models

**Chairs:** D. Rosenblatt and B. Fowler

Conference: Strategies to correct homocystinuria in mouse models of CBS deficiency

**W.D. Kruger (Philadelphia, United States)**
Oral communications

Correction of cognitive impairment in a model of hyperhomocysteinemia due to cystathionine beta synthase

N. Janel (Paris, France)
Does hyperhomocysteinemia affect collagen and elastin cross-links in a mouse model of cystathionine β-synthase deficiency?

J. Perla-Kaján (Poznań, Poland)
Body composition, lipid metabolism and SCD-1 activity in patients with classical homocystinuria

S. Poloni (Porto Alegre, Brazil)
Methylation imbalance in a mouse model of CBS deficiency induces liver phospholipid remodelage

A. Imbard (Paris, France)

Coffee Break

15:50-17:20. Session 5: Absorption, blood and cellular transport of B vitamins

Chairs: E. Nexo and E. Quadros
Conference: Absorption and blood/cellular transport of B vitamins involved in one-carbon metabolism

D.H. Alpers (Saint Louis, United States)
Conference: Lysosomal transport of cobalamin: what we know and what we don’t know

F. Rutsch (Münster, Germany)

Oral communications

Transcytosis in the vascular endothelium recycles uncommitted vitamin B12

L. Hannibal (Cleveland, United States)

Flash communications

Proteomics and Genomics approach to understand mechanism of Cysteine induced toxicity in yeast

A.J. Bhat (New Delhi, India)
Stable isotope dilution assays for clinical analyses of folates and other one-carbon metabolites

M. Kopp (Freising, Germany)

15:50-17:20. Session 6: Inherited disorders of one-carbon metabolism at the age of NGS

Chairs: D. Rosenblatt and F. Rutsch
Conference: Intracellular cobalamin partitioning, advances and unanswered questions

B. Fowler (Zürich, Switzerland)

Oral communications

Search for the molecular basis of two complementation-confirmed atypical mut patients

J. Chu (Montreal, Canada)
Investigating a novel inborn error of cobalamin metabolism

M. Pupavac (Montreal, Canada)
New MTHFD mutation and immunodeficiency in two siblings

J.L. Gueant (Nancy, France)
Loss of LMBD1 protein results in gastrulation defects during mouse embryogenesis

I. Buers (Münster, Germany)
Thursday  9th July 2015

Morning 9:00-9:30. Plenary lecture: Excessive Folic Acid (FA) Intake and Relation to Adverse Effects  
J. Selhub. (Boston, United States)

Plenary sessions

Session 7: One carbon metabolism, epigenomics and epigenetics
Chairs: P. Stover and N.D.E. Greene
9:30-11:00. Conference: Epigenomic Dysregulations in Vitamin B12 and Folate Deficiencies  
J.L. Guéant (Nancy, France)

Oral communications
Maternal vitamin B12 deficiency leads to altered DNA methylation in genes involved in fatty acid metabolism as revealed by whole genome methylation analysis using MeDIP-Seq  
S. Sengupta (New Delhi, India)
Effect of MTHFR 677C>T on genome-wide DNA methylation: A meta-analysis  
P.R. Mandaviya (Rotterdam, Netherlands)
B12 Intervention Influences Methylation of Genes Associated with Type 2 Diabetes and Its Intermediate Traits  
D.K. Yadav (Hyderabad, India)
Global and MTHFR gene specific methylation and its role in Preeclampsia.  
M.P. Sachdeva (Delhi, India)

Coffee Break

11:20-12:50. Session 8: Carbon metabolism in development and birth defects: lessons from experimental models, genetics and population studies
Chairs: H. Blom and R. Finnell
Conference: Folate one-carbon metabolism and development: a requirement for the glycine cleavage system in neural tube closure and brain development  
N.D.E. Greene (London, United Kingdom)

Oral communications
Mouse ontogenesis of enzymes involved in 1-C metabolism  
A. Imbard (Paris, France)
Preventable neural tube defects in Germany  
R. Obeid (Aarhus C, Denmark)
L-5-Methyltetrahydrofolate supplementation increases blood folate concentrations to a greater extent than folic acid supplementation in Malaysian women  
R.E. Aleliunas (Vancouver, Canada)
Gestational methyl donor deficiency affects embryonic development through altered microRNA pathways  
A. Geoffroy (Nancy, France)

Lunch
Afternoon  Parallel sessions
14:00-15:35. Session 9: One carbon metabolism, pregnancy and foetal programming.
Chairs: H. Refsum and R. Obeid
Conference: 1-C metabolism and risk of diabetes and cardiovascular disease in Indians
C.S. Yajnik (Pune, India)
Early pregnancy B vitamin status, one carbon metabolism and pregnancy outcome
M. Murphy (Tarragona, Spain)
Common discussion

Oral communications

Seminal Quality And Pesticide Exposure – Interrelationship With Homocysteine, Folate And Vitamin B12
R. Delport (Pretoria, South Africa)
Father's In Utero and Postweaning Dietary Folic Acid Intake Affects the Health of his Offspring
A.J. MacFarlane (Ottawa, Canada)
Methyl donor deficiency during gestation and lactation produces hepatosteatosis in rat offspring fed a high-fat diet in adult life
A. Bison (Nancy, France)
Elevated levels of S-adenosylhomocysteine, DNA hypomethylation of placental growth factor and global DNA hypomethylation in placentas of preeclamptic pregnancies
S.G. Heil (Rotterdam, Netherlands)

14:00-15:37. Session 10: Choline and betaine in early and later life
Chairs: P. Ueland and W. Herrmann
Conference: Structural and catalytic features of betaine-homocysteine S-methyltransferase enzymes: metabolic implications for sulfur amino acid homeostasis.
T.A. Garrow (Urbana-Champaign, United States)

Oral communications

Effects of the BHMT c.716G>A polymorphism on the betaine dimethylglycine pathway during pregnancy.
J.M. Colomina (Tarragona; Spain)
Elevated plasma dimethylglycine predicts cardiovascular risk only when plasma methylmalonic acid is also high
V. Lysne (Bergen, Norway)
From liver to brain dysfunction – a pilot study in methionine and choline deficient rats
A. Troen. (Jerusalem, Israel)
The effect of orally administered alpha glycerophosphocholine in senescence-accelerated mouse P/8
S. Shibata (Hiroshima, Japan)

Coffee Break

15:50-17:30. Session 11: Genetic determinants of the one carbon metabolism in populations
Chairs: P. Stover and A. Molloy
Conference: Dissecting the contribution of genetic variation on one carbon metabolites

L. Brody (Bethesda, United States)

Oral communications

The dihydrofolatereductase (DHFR) 19 base-pair deletion polymorphism modifies the association of folate status with memory

A.M. Troen (Jerusalem, Israel)
Genetic determinants of vitamin B_{12} levels in Indians

S.S. Nongmaithem (Hyderabad, India)
Genetic modifiers of folate, vitamin B_{12} and homocysteine status in a nationally representative sample of the Canadian population

A.J. MacFarlane (Ottawa, Canada)
A 10-year follow-up study to investigate blood pressure in healthy male adults screened for the C677T polymorphism in MTHFR.

E. Hughes (Coleraine, Northern Ireland)

Flash communications

Associations between homocysteine, the MTHFR 677C>T polymorphism and hypertension in adults

G. Ornosa (Tarragona, Spain)

15:50-17:30. Session 12: Biomarkers of the one carbon metabolism and B Vitamins in medical practice and population studies

Chairs: S. Stabler and D. Ingrosso
Conferences: Vitamin B12 biomarkers Diagnostic tool or diagnostic truth

E. Nexo (Aarhus, Denmark)

Oral communications

Circulating Levels of Trimethyllysine Predicts Incident Myocardial Infarction in Patients With Stable Angina Pectoris depending on Vitamin B2 status

H. Olset (Bergen, Norway)
Lower CSF 3-Orthomethyldopa Levels Related with One Carbon Metabolism in First Episode Psychosis

O. Ozcan (Istanbul, Turkey)
Lipid and Homocysteine metabolism in a Mendelian population: A study from rural and urban North India.

K.N. Saraswathy (New Delhi, India)

Flash communications

The one-carbon metabolism in a cohort of 323 healthy children and adolescents

H.C. Araújo (Funchal, Portugal)
Methybmalonic acid concentration quantified in newborn screening cards for vitamin B12 status assessment at birth

T.H. Schroder (Vancouver, Canada)
Identification of a coding SNP in transcobalamin II affecting the analysis of holotranscobalamin using the monoclonal antibody.

A. Sobczyńska-Malefora (London, United Kingdom)

17:30-18:30. Poster session

20:00-23:00. Gala Diner
Friday 10th July 2015

Morning
9:00-9:30. Plenary lectures: The Homocysteine Theory: Dead or Alive
_H. Refsum (Oxford, United Kingdom)_

Plenary sessions
9:30 -11:00. **Session 13: One carbon metabolism and diseased ageing: lessons from experimental models and population studies**
_Chairs: J. Miller and I.H. Rosenberg_
Conference: One carbon metabolism and diseased ageing: Decoding folate and vitamin B12 biomarker patterns in older adults
_A. Molloy (Dublin, Ireland)_

Oral communications
Persistence of N-homocysteinylation of structural proteins and gastric mucosa inflammation in adult and aged rats after fetal and early post natal exposure to methyl donor deficiency
_C. Bossemeyer-Pourié (Nancy, France)_
Vitamin B6 catabolism and long-term mortality risk
_A. Ulvik (Bergen, Norway)_
Prospective study of telomere length and LINE-1 methylation in peripheral blood cells: the role of B and/or D vitamins supplementation
_I. Pusceddu (Homburg, Germany)_
Elevated plasma vitamin B12 and risk of venous thromboembolism in cancer patients
_J.F.B. Arendt (Aarhus, Denmark)_

Coffee Break
11:20-12:50. **Session 14: Health and nutrition examination survey in B vitamins and choline, worldwide**
_Chairs: L. Allen and O. Nygård_
Conference: Population-based assessment of vitamin B12 status in the era of folic acid fortification
_J.W. Miller (New Brunswick, United States)_

Oral communications
_C.M. Pfeiffer (Atlanta, United States)_
Obesity and osmolality are associated with decreased concentrations of serum folate
_E. Laird (Dublin, Ireland)_
Unmetabolized folic acid in serum after single folic acid or B-complex supplementation
_R. Obeid (Homburg, Germany and Aarhus, Denmark)_
 Poor biochemical riboflavin status common among non-supplemented older adults in Northern Ireland and the Lower Mainland, British Columbia, Canada
_K.C. Whitfield (Vancouver, Canada)_

Lunch
Session 15: B Vitamins and homocysteine in neurological and behaviour disorders
Chairs: A. McCaddon and J.L. Daval
Conference: A good omega-3 fatty acid status is required for B vitamins to protect the brain: a retrospective look at VITACOG
D. Smith (Oxford, United Kingdom)

Oral communications
Mutations in human Capicua gene underlies folate transport defects in children with the Cerebral Folate Deficiency syndrome
R.H. Finnell, (Austin, United States)
Folate receptor antibodies are associated with infantile autism and juvenile schizophrenia
V.T. Ramaekers (Liège, Belgium)
Vitamin B12, folate, and sulfur amino-acids in relation to the rate of brain atrophy in subjects at risk of dementia: a longitudinal population based study
B. Hooshmand (Stockholm, Sweden)

Flash communications
Impact of vitamin B12 deficiency on the brain of the mouse model invalidated for the CD320 gene
N. Dreumont (Nancy, France)
A rat model for folate receptor antibody-mediated behavioral deficits
J.M Sequeira (New-York, United States)

Session 16: Vitamin B2, vitamin B6, kynurenine and tryptophan
Chairs: J. Selhub and R. Castro
Conference: Direct and Functional Biomarkers of Vitamin B6 Status
P.M. Ueland (Bergen, Norway)
Conference: Influence of Vitamin B6 Status on the Function of the Transsulfuration Pathway
J. Gregory (Gainesville, United States)

Oral communications
Plasma pyridoxal 5’-phosphate concentration decreases while cystathionine concentration increases during pregnancy: results of a prospective cohort study.
M.F. Mujica-Coopman (Vancouver, Canada)
An observational investigation of roles of vitamin B6, riboflavin and their interaction, and with MTHFR genotype, as determinants of cognitive performance in ageing: Results from the TUDA Ageing Cohort Study
C.F. Hughes (Coleraine, Northern Ireland)

Coffee Break

Session 17: Homocysteine, vitamins B and choline in cardiovascular diseases, components of metabolic syndrome and bone diseases
Chairs: H. Refsum and T. Bottiglieri
Conference: Homocysteine and kidney failure: do tangled clues start getting unraveled?
D. Ingrosso (Naples, Italy)
Conference: Plasma trimethylamine N-oxide is related to glucose, cholesterol and methyl group metabolism

*R. Obeid (Aarhus C, Denmark)*

**Oral communications**

- Hyperhomocysteinaemia and B vitamin intakes in patients with a history of cardiovascular disease
  *A. Sobczynska-Malefora (London, United Kingdom)*
- Homocysteine-thiolactone and cardiovascular disease in B-vitamin trials
  *H. Jakubowski (Poznan, Poland and Newark, United States)*

**Flash communications**

- Interleukin-6, choline and type 2 diabetes associated or not with essential hypertension
  *L.L. Hurjui (Iasi, Romania)*
- Association of dietary choline with incident diabetes mellitus in patients with stable angina pectoris
  *T. Karlsson (Bergen, Norway)*
- Targeted metabolomics of the methylation cycle in chronic kidney disease and the effect of oral SAMe.
  *T. Bottiglieri (Texas, United States)*

15:50-17:40. **Session 18: One carbon metabolism and related diseases in medical practice**

*Chairs: R. Green and D. Smith*

- Conference: Vitamin B12 Deficiency in the Perinatal Period: Assessment, Consequences, Treatment and Prevention
  *L.H. Allen (Davis, United States)*

- Conference: Vitamin Use in Correction of Moderate and Severe Hyperhomocysteinemia
  *S. Stabler (Denver, United States)*

- Conference: Hyperhomocysteinemia and Cognitive Impairment: Causation or Consequence?
  *A. McCaddon (Wrexham, United Kingdom)*

**Flash communications**

- Predictors of maternal folate and vitamin B12 status among exclusively breastfeeding New Zealand women
  *R.A. Stamm (Dunedin, New Zealand)*
- One Carbon metabolism in young Indian girls: use of methionine load test.
  *P. Katre (Ohio, United States)*

20:00-22:00. **Concert Salle Poirel**

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**Saturday 11th July 2015**

9:00-9:30. Plenary lecture: The protean faces of vitamin B12 deficiency - master of disguises

*R. Green (Davis, United States)*
9:30-10:30. Round table: Homocysteine controversy: an actor or a marker of diseased ageing?
The homocysteine hypothesis of cardiovascular disease: lessons from the randomised trials of B-vitamins and genetic studies of the MTHFR C677T polymorphism
R. Clarke (Oxford, United Kingdom)
The Homocysteine? Vascular Hypothesis: a Quarter Century of Evidence
I.H. Rosenberg (Boston, United States)

Coffee Break

A. Molloy (Dublin, Ireland)
11:30-12:10. Round table: Folate fortification, the pros and cons
H. Blom (Freiburg, Germany)

12:10-12:30. Closing ceremony

Tour in the city centre