



## 14th International Conference One Carbon Metabolism, B Vitamins and Homocysteine

### 2nd CluB-12 Annual Symposium

17-20 September 2023

GMT	SUNDAY 17 SEPTEMBER 2023
16:00-18:30	<b>REGISTRATION AND POSTER PLACING</b>
16:45-17:05	<b>Opening and Welcome Address</b> Julian Owen   Martin Warren   Luciana Hannibal
17:05-18:15	<b>SESSION 1   VITAMIN B12 DEFICIENCY: The patient's perspective</b> Chair: Andrew McCaddon, Wales College of Medicine, Wales, UK
17:15-18:15	<b>Case based discussion: "Esther's story; a diagnostic journey"</b> Andrew Klein   Esther Cornell   Willemina Rietsema   Heather Hardie <i>Royal Papworth Hospital NHS Foundation Trust, Cambridge, England, UK.</i>
18:15-18:30	<b>Welcome to Cambridge University</b> Prof. Andrew McCaskie <i>Division of Trauma and Orthopaedic Surgery, University of Cambridge, England, UK</i>
18:30-23:00	<b>RECEPTION DRINKS AND BUFFET SUPPER</b>



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GMT	MONDAY 18 SEPTEMBER 2023
9:00-11:45	<b>SESSION 2   EPIDEMIOLOGY AND CLINICAL MANIFESTATIONS OF B-VITAMIN DEFICIENCIES</b> Chair: Mary Ward, Ulster University, Coleraine, Northern Ireland, UK
	<b>LESSONS LEARNED &amp; NEW INSIGHTS</b>
9:00-9:30	<b>Early pregnancy folate and cobalamin status and mid-childhood health and development. The Reus-Tarragona Birth Cohort Study</b> Michelle Murphy <i>Universitat Rovira i Virgili, Reus, Spain</i>
9:30-9:45	<b>Prenatal folic acid and vitamin B12 imbalance alters mouse cerebral cortex development.</b> Noemi Cannizzaro <i>University of California Davis, USA</i>
9:45-10:15	<b>Vitamin B12 research in Pune, India</b> Chittaranjan Yajnik <i>KEM Hospital, Pune, India</i>
10:15-10:30	<b>Homocysteine Metabolites Inhibit Autophagy, Elevate Amyloid Beta, and Induce Neuropathy by Impairing Phf8/H4K20me1-dependent Epigenetic Regulation of mTOR in Cystathionine <math>\beta</math>-Synthase-Deficient Mice</b> Hieronim Jakubowski <i>Rutgers University, USA and Poznań University of Life Sciences, Poland</i>
10:30-11:00	<b>COFFEE Break</b>
11:00-11:30	Genetic predictors of lifelong patterns of cobalamin injections among patients diagnosed with vitamin B12 deficiency (pernicious) anaemia Kouros Ahmadi <i>University of Surrey, London, England, UK</i>
11:30-11:45	<b>Association between serum vitamin B12 and subclinical neurological deficits in a healthy older cohort: Evidence to support reconsideration of current targets for defining optimal B12 status</b> Alexandra Beaudry-Richard   Ari Green <i>University of California San Francisco, San Francisco, USA</i>
11:45-12:15	cluB-12 Annual General Meeting - cluB-12 members
12:15-13:30	<b>LUNCH</b>



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GMT	MONDAY 18 SEPTEMBER 2023
13:30-16:15	<b>SESSION 3   FUNCTIONAL BIOMARKERS OF B-VITAMIN STATUS</b> Chair: Irwin Rosenberg, Tufts University, Massachusetts, USA
	<b>LESSONS LEARNED &amp; NEW INSIGHTS</b>
13:30-14:00	<b>The analytical and clinical utility of selected biochemical markers of B vitamin status at St. Thomas' Hospital in London</b> Agata Malefora <i>Synnovis, St. Thomas' Hospital, London, England, UK</i>
14:00-14:15	<b>Brain B Vitamins and Genetic Polymorphisms Related to One-Carbon Metabolism in Alzheimer's and Parkinson's Disease</b> Karel Kalecký <i>Baylor Scott &amp; White Research Institute, USA</i>
14:15-14:45	<b>Biomarkers of B12-status: their ups and downs, figurative and literal</b> Sergey Fedosov <i>Aarhus University, Aarhus, Denmark</i>
14:45-15:00	<b>Association between elevated plasma total homocysteine and asymmetric dimethyl arginine during pregnancy and preterm birth: The Reus-Tarragona Birth Cohort study.</b> Carla Ramos-Rodriguez <i>Universitat Rovira i Virgili, Spain</i>
15:00-15:30	<b>TEA Break</b>
15:30-16:00	<b>B12 Deficiency in the contemporary and emerging neurological landscape</b> Ari Green <i>University of California San Francisco, San Francisco, USA</i>
16:00-16:15	<b>In utero exposure to vitamin B12 and folate and brain structure in young adults: The Pune Maternal Nutrition Study</b> Rishikesh Behere   Chittaranjan Yajnik <i>KEM Hospital, Pune, India</i>
16:15-17:30	<b>POSTER VIEWING</b>
17:30-17:35	<b>Introduction Keynote Lecture</b> <i>Luciana Hannibal, Medical Center, University of Freiburg, Germany</i>
17:35-18:35	<b>Keynote Lecture   B12, Blood and Brain   Ralph Greer</b> <i>University of California, Davis, California, USA</i>
18:35-21:30	<b>FREE TO EXPLORE CAMBRIDGE DINING</b>
21:30-23:00	<b>NIGHTCAPS AT "THE MAYPOLE"</b>



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GMT	TUESDAY 19 SEPTEMBER 2023
9:00-11:45	<p><b>SESSION 4   EXPERIMENTAL MODELS OF B-VITAMIN METABOLISM</b>            Chair: Anne Molloy, Trinity College Dublin, Dublin, Ireland</p>
	<b>LESSONS LEARNED &amp; NEW INSIGHTS</b>
9:00-9:30	<p><b>Cellular and molecular consequences of vitamin B12 deficiency and metabolic inborn errors: the lessons learnt from experimental models of impaired methionine synthase</b>            Jean Louis Gueant  <i>University of Lorraine, France</i></p>
9:30-9:45	<p><b>Deletion of the Homocysteine Thiolactone Detoxifying Enzyme Biphenyl Hydrolase-like (Bphl), in Mice, Induces Biochemical and Behavioral Hallmarks of Alzheimer's Disease</b>            Łukasz Witucki  <i>Poznań University of Life Sciences, Poland</i></p>
9:45-10:15	<p><b>What we have learnt from the mouse model of vitamin B12 deficiency</b>            Edward Quadros  <i>SUNY - Downstate Medical Center, New York, USA</i></p>
10:15-10:30	<p><b>Diet induced severe hyperhomocysteinemia promotes experimental atherosclerosis and modifies the plasma metabolome in apolipoprotein E deficient mice</b>            Teodoro Bottiglieri  <i>Baylor Scott &amp; White Research Institute, Dallas, Texas USA</i></p>
10:30-11:00	<b>COFFEE Break</b>
11:00-11:30	<p><b>Exploring vitamin B12 related metabolism in the nematode <i>Caenorhabditis elegans</i></b>            Gabrielle Giese  <i>UMass Chan Medical School, Massachusetts, USA</i></p>
11:30-11:45	<p>Characterization of aberrant hepatic and hippocampal one-carbon metabolism in CBS deficient homocystinuria yields new insights into pathogenesis and dramatically improved treatment: The end of methionine restriction?            Kenneth Maclean  <i>University of Colorado School of Medicine, USA</i></p>
11:45-12:15	HCY2025 Planning - HCY Committee - Arthur Quiller Couch Room
12:15-13:30	<b>LUNCH</b>



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GMT	TUESDAY 19 SEPTEMBER 2023
13:30-16:15	<p><b>SESSION 5   MOLECULAR MECHANISMS OF B-VITAMIN METABOLISM: FROM GENES TO ENZYMES</b>            Chair: Viktor Kozich, Charles University Prague, Prague, Czech Republic</p>
	<b>LESSONS LEARNED &amp; NEW INSIGHTS</b>
13:30-14:00	<p><b>The complex machinery of human cobalamin metabolism</b>            Thomas McCorvie  <i>Newcastle University, Newcastle upon Tyne, UK</i></p>
14:00-14:15	<p><b>Using Cryo-EM and AlphaFold to Survey the Dynamic Landscape of a Vitamin B12-utilising Protein Machine</b>            Douglas Ferreira            Nuffield Department of Medicine, University of Oxford, UK</p>
14:15-14:45	<p><b>Unexpected gene-diet interaction in Cbs-deficient mice</b>            Warren Kruger  <i>Fox Chase Cancer Center, Philadelphia, USA</i></p>
14:45-15:00	<p><b>The nuclear location of methionine synthase and methionine synthase cycle open new clues in the links of the remethylation pathway with epigenetics</b>            Manon Jeandel  <i>Laboratory NGERE Inserm, University of Lorraine, Nancy, France</i></p>
15:00-15:30	<b>TEA Break</b>
15:30-16:00	<p><b>Mechanisms Underlying Folic-acid Responsive Neural Tube Defects and Neuropathies</b>            Patrick Stover  <i>Texas A &amp; M University, Texas, USA</i></p>
16:00-16:15	<p><b>Vitamin B12 status and folic acid supplementation influence mitochondrial heteroplasmy levels in mice as they age</b>            Anne Parle-McDermott  <i>Dublin City University, Ireland</i></p>
16:25-16:30	<p>Introduction LIFETIME CAREER AWARD LECTURE  <i>Martin Warren, Quadram Institute Bioscience, Norwich, England, UK</i></p>
16:30-17:30	<b>LIFETIME CAREER AWARD LECTURE   Debatable Issues Around Vitamin B12   Ebba Neerhus University, Aarhus, Denmark</b>
17:30-19:00	<b>Free time (1.5 hours)</b>
19:00-23:00	<b>RECEPTION DRINKS   CONFERENCE DINNER</b>



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GMT	WEDNESDAY 20 SEPTEMBER 2023
9:00-12:15	<b>SESSION 6   VITAMIN B12 ECOLOGY AND THE ROLE OF THE MICROBIOME</b> Chair: Martin Warren, Quadram Institute Bioscience, Norwich, England, UK
	<b>LESSONS LEARNED &amp; NEW INSIGHTS</b>
9:00-9:30	<b>The conundrum of the microbiome and B12</b> Martin Warren <i>Quadram Institute Bioscience, Norwich, England, UK</i>
9:30-9:45	<b>Gut microbiome associated with vitamin B12 deficiency in rural Indians</b> Chittaranjan Yajnik <i>Diabetes Unit, KEM Hospital Research Centre, Pune, India</i>
9:45-10:15	<b>Independent Associations of Serum Vitamin B12 and Methylmalonic Acid with Gut Microbial Co-Abundance Guilds: Implications for MMA as a Specific Biomarker for B12 Status</b> Joshua Miller <i>Rutgers University, New Brunswick, NJ, USA</i>
10:15-10:30	<b>Constraint-based modeling as a tool for studying inborn errors of cobalamin metabolism</b> Almut Heinken <i>Université de Lorraine, France</i>
10:30-11:00	<b>COFFEE Break</b>
11:00-11:45	<b>Algae need their vitamins too</b> Payam Mehrshahi   Andre Holzer <i>University of Cambridge, Cambridge, England, UK and Saarland University, Saarland, Germany</i>
11:45-12:15	<b>CLOSING REMARKS AND PRIZE-GIVING</b>
12:15-14:00	<b>LUNCH</b>
14:00	<b>DEPARTURE   EXECUTIVE TRANSFER TO SAA2023, OXFORD</b>