



11th International Symposium on Metal Ions in Biology and Medicine

20th – 23rd June 2011, Cambridge UK
www.metal-ions2011.com

MRC | Human Nutrition Research

MONDAY 20TH JUNE

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| 9.00 | Registrations | |
| 11.30 | Lunch (Fellow's dining room) | |
| 13.00 | Opening Lecture Welcome by the organising committee | |
| 13.10 | <u>Prof Dame Athene Donald (UK)</u> – Plenary Keynote Lecture: 'No Need to Dry - the power of Environmental Scanning Electron Microscopy for Biology' | |
| 14.00 | INORGANIC ANALYTICAL METHODOLOGY: Part I <i>Chairs: Jules Griffin (UK) and Nuno Faria (UK)</i> | |
| 14.05 | <u>Ryszard Lobinski (France)</u> – Keynote Lecture: State-of-the art analytical methods for metals and their species in biological systems | 001 |
| 14.35 | <u>Alexander Kamnev (Russia)</u> - Spectroscopic studies of some effects of metal ions related to soil microbial ecology | 003 |
| 15.00 | <u>Fadi Abou-Shakra (UK)</u> – Analysis of clinical samples using ICP-MS with novel ion optics | |
| 15.30 | Coffee Break (Foyer: 1st floor) | |
| 16.00 | INORGANIC ANALYTICAL METHODOLOGY: Part II | |
| 16.05 | <u>Rob Hutchinson (UK)</u> - The potential for metallomic imaging by LA-ICP-MS in biomedical analysis | 002 |
| 16.35 | <u>Peter Winship (UK)</u> - Analytical Pitfalls in the measurement of Whole Blood Cobalt and Chromium by DRC-ICP-MS | 004 |
| 17.00 | <u>John W Ejniak (USA)</u> - Gold analysis in biological samples by ICP-AES | 005 |
| 17.30 | Closing | |
| 14.00 | METAL-BASED TOXICOLOGY: Part I <i>Chairs: Paul Tchounwou (USA) and Shelton Swanier (USA)</i> | |
| 14.10 | <u>Michael Aschner (USA)</u> – Keynote Lecture: The role smf transporters and dopamine in manganese-induced neurodegeneration in <i>C. elegans</i> | 007 |
| 14.40 | <u>Anthony White (Australia)</u> - Novel Neuroprotective Action of Copper Complexes | 009 |
| 15.10 | <u>Stanley Fan (UK)</u> - Do oral aluminium based phosphate binders in dialysis patients cause accumulation of aluminium to toxic levels? | 055 |
| 15.30 | Coffee Break (Foyer: 1st floor) | |
| 16.00 | METAL-BASED TOXICOLOGY: Part II | |
| 16.05 | <u>Moussa Youdim (Israel)</u> – Keynote Lecture: Why multi target iron chelators as neuroprotective-neurorestorative drugs for neurodegenerative disorders? | 008 |
| 16.35 | <u>Gabi Drochioiu (Romania)</u> - Metal- and pH-induced conformational changes of amyloid peptides: a structural-phenomenological approach | 010 |
| 16.55 | <u>Manuela Murariu (Romania)</u> - Physiological significance of silver-induced conformational changes of histidine-containing peptides | 057 |
| 17.30 | Closing | |
| 21.30 | Punting tour | |



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TUESDAY 21ST JUNE

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|--------------|---|------------|
| 8.30 | Morning Coffee (Foyer: 1st floor) | |
| 9.00 | ORTHOPAEDICS & BIOMINERALISATION: Part I <i>Chairs: Serena Best (UK) and Peter Winship (UK)</i> | |
| 9.05 | <u>Alister Hart (UK)</u> – Keynote Lecture: An inter-disciplinary approach to understanding exaggerated inflammation induced by implant-derived metal debris and ions | O13 |
| 9.35 | <u>Fred Mosselmans (UK)</u> - Using Synchrotron X-rays to probe the causes of MoM hip prosthetics failure. | O14 |
| 9.55 | <u>Patrick Case (UK)</u> - DNA damage at a distance | O15 |
| 10.15 | <u>Ashley Newton (UK)</u> - Distribution of Cobalt, Chromium and Nickel between whole blood, plasma and urine in 202 patients after metal on metal hip arthroplasty | O16 |
| 10.30 | Coffee Break (Foyer: 1st floor) | |
| 11.00 | ORTHOPAEDICS & BIOMINERALISATION: Part II | |
| 11.05 | <u>Matt Royle (UK)</u> - Silver-containing surface engineered hip bearings as a potential to reduce post-operative infection | O17 |
| 11.25 | <u>Priya Kalia (UK)</u> - Direct inhibition of osteoclast formation and activity by the vitamin E isomer gamma-tocotrienol | O18 |
| 11.45 | <u>Karan Shah (UK)</u> - Effect of Metal Ion Combinations on Osteoblasts in vitro. | O19 |
| 12.05 | <u>Kristina Ulrich Sørensen (Denmark)</u> - Long Term Dietary Phosphorus Supply during Growth Affects Bone Mineralization and Development in Pigs. | O20 |
| 12.30 | Lunch break (Fellow's dining room) | |
| 14.00 | NANOMINERALS: Part I <i>Chairs: Roger Brooks (UK) and Laetitia Pele (UK)</i> | |
| 14.05 | <u>Matthias Epple (Germany)</u> – Keynote Lecture: Calcium phosphate nanoparticles in biology and medicine. | O21 |
| 14.35 | <u>Svitlana Chernousova (Germany)</u> - Calcium phosphate nanoparticles functionalized with DNA that encodes the formation of antimicrobial peptide for cell transfection | O26 |
| 14.55 | <u>Andrew Brown (UK)</u> - Characterisation of ferrihydrite, a nanomineral phase | O24 |
| 15.30 | Coffee Break (Foyer: 1st floor) | |
| 16.00 | NANOMINERALS: Part II | |
| 16.05 | <u>Marco Monopoli (Ireland)</u> - Protein corona associated with nanoparticles | O58 |
| 16.25 | <u>Sebastian Riedle (New Zealand)</u> - Dietary Exposure to Titanium Dioxide Does Not Affect Growth and Immune Cell Composition of Peyer's Patches and Mesenteric Lymph Nodes in Healthy Mice | O25 |
| 16.45 | <u>Zofia Gagnon (USA)</u> - Silver Nanoparticle Exposure: A Hematological Analysis of the Immunological Response in an Avian Model | O27 |
| 17.05 | <u>Abdelfattah Badawi (Egypt)</u> - Synergistic Antibacterial Effect of ZnO/Ampicillin Nanocomposite and the Role of Gamma-irradiation. | O22 |
| 17.30 | Closing | |
| 18.00 | Plenary lecture (Auditorium) <u>Jonathan Powell (UK)</u> – Beer: Silicon and moderate alcohol consumption in connective tissue health | |

19.00 POSTER and BEER RECEPTION (Fellow's dining room)

| INORGANIC ANALYTICAL METHODOLOGY | |
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| <i>Kazuya Takahashi (Japan)</i> - New method for comprehensive detection of chemical warfare agents using an electron-cyclotron-resonance ion-source mass spectrometer | P01 |
| <i>Tatsuya Urabe (Japan)</i> - ESI-MS: a new metal speciation technique and its implication in toxicity of aluminum | P02 |
| <i>Sylvaine Bruggraber (UK)</i> - Direct identification of iron(III) complexes with maltol in solution by Electrospray Ionisation Mass Spectrometry | P03 |
| <i>Sylvaine Bruggraber (UK)</i> - Does ferric-maltol speciation model defined by data from electrospray ionisation mass spectrometry fit the spectrophotometry/potentiometry data? | P04 |
| <i>Brij Tewari (Guyana)</i> - Studies on biologically important nickel(II), lead(II) and mercury(II) binary complexes with homoserine in solution | P05 |
| BIOMINERALISATION and ORTHOPAEDICS | |
| <i>Monika Martiniaková (Slovakia)</i> - Microscopic structure of femoral bone tissue in adult male rats after subchronic cadmium administration | P06 |
| <i>Radoslav Omelka (Slovakia)</i> - Structural changes in femoral bone tissue of rats after subchronic peroral administration to selenium | P07 |
| <i>Matt Royle (UK)</i> - Surface engineered hip replacement bearings to reduce metal ion release | P08 |
| INORGANICS IN CANCER, IMAGING and THERAPEUTICS | |
| <i>Gérard Bastian (France)</i> - In vitro antitumor activity potentiation of a new diselenate Rhenium complex associated with Gallium salicylate. | P09 |
| <i>Jose Ruiz (Spain)</i> - Synthesis and Antiproliferative Activity of C,N-Cycloplatinated(II) Complex with a Potentially Intercalative Anthraquinone Pendant | P10 |
| <i>Muhammad Hanif (Austria)</i> - Synthesis, Cytotoxicity and Cell Uptake Studies of Ru(II)-Arene Complexes Linked with Carbohydrate Based Ligands | P11 |
| <i>Venancio Rodríguez (Spain)</i> - Novel Ruthenium(II), Rhodium(III) and Iridium(III) Antitumor Complexes with a Levonorgestrel Pendant | P12 |
| <i>Concepción de Haro (Spain)</i> - Synthesis and cytotoxicity of new acridine C,N-quelates of Ru(II), Rh(III) and Ir(III) | P13 |
| <i>Clement Yedjou (USA)</i> - In vitro Assessment of Lead-Induced Apoptosis to Human Liver Carcinoma (HepG2) Cells | 038 |
| ENVIRONMENTAL EXPOSURE TO METALS | |
| <i>Tarek Elnimr (Egypt)</i> - Evaluation of some heavy metals in Pangasius Hypothalmus and Tilapia Nilotica and the role of acetic acid in lowering their levels | P15 |
| <i>John W Ejniak (USA)</i> - Utilizing Vacuum Tumblers to Reduce Methyl Mercury Levels in Fish Fillets | P16 |
| <i>Anatoly Skalny (Russia)</i> - Moderate metal exposure in humans and multielement profiles of biosamples: age related changes are more significant than occupational contacts | P18 |
| METAL-BASED TOXICOLOGY | |
| <i>Wayne Briner (USA)</i> - Artemia Salina as a Model for Evaluating Depleted Uranium and Antioxidant Exposure | P19 |
| <i>Wayne Briner (USA)</i> - The Effect of Antioxidants on Behavioral and Biochemical Measures of Depleted Uranium Toxicity in Mice – A Preliminary Report | P20 |
| <i>Wayne Briner (USA)</i> - The Behavioral Toxicology of Gallium Nitrate | P21 |
| NANOMINERALS | |
| <i>Abdelfattah Badawi (Egypt)</i> - Novel Ampicillin ZnO Nanocomposite-Remarkable Breakthrough in Potential Cytotoxicity Against Myeloma Cell Lines. | P26 |
| <i>Laura Sáez (Spain)</i> - Fluorimetric determination of Cu (II) in biological samples by using capped cysteine Cd-Te quantum dots | P27 |
| <i>Milica Todea (Romania)</i> - Synthesis and characterization of titanium silicate microspheres | P28 |
| <i>Lylia Khassanova (Russia)</i> - Further understanding of the mode of the silver nanoparticles action against Saccharomyces cerevisiae cells | P29 |
| <i>Carolyn Haas (UK)</i> - Characterization of in vitro synthesized amorphous calcium phosphate particles and their immunomodulatory effects on blood-derived macrophages | P30 |

| NUTRITIONAL IMMUNOLOGY | |
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| <i>Ana Aguilar Cardenas (Mexico)</i> - Zinc supplementation and its effects on the histology and cellularity of the thymus in mice at different developmental stages. | P31 |
| <i>Rachel Hewitt (UK)</i> - Enhanced cytotoxic responses to inorganic dietary microparticle antigen carriers | P32 |
| NUTRITION | |
| <i>Julieta Binaghi (Argentina)</i> - Traditional dishes from Northern Argentina: mineral content and "in vitro" availability | P33 |
| <i>Nadia Munquía (Mexico)</i> - The content of zinc in hair of mice with zinc excessive intake | P34 |
| <i>Laura Sáez (Spain)</i> - Status of iron and copper in high-performance athlete | P35 |
| <i>Daniela Florea (Spain)</i> - Assessment of Nutritional Status of Selenium in a healthy adult population of Granada, Spain. | P36 |
| <i>Virginia Melo (Mexico)</i> - The Chiton <i>Chiton articulatus</i> source of minerals for human health | P37 |
| <i>Virginia Melo (Mexico)</i> - Mineral composition of avocado <i>Persea americana M</i> , Mexican native fruit | P38 |
| <i>Zoe Tolkien (UK)</i> - Dietary iron and quality of life in inflammatory bowel disease | P39 |
| MINERAL BIOCHEMISTRY | |
| <i>Antonio Donaire (Spain)</i> - Structural rearrangements upon assembly of CuA centers | P41 |
| <i>Ekaterina Ilyechova (Russia)</i> - In vivo model for studying the role of copper in the development of the skeletal system of mammals | P42 |
| <i>Yulia Vasilenko (Russia)</i> - Involvement of adrenal glands in copper homeostasis in rats | P43 |
| <i>Josiane Arnaud (France)</i> - Biological variability of selenium effect on cutaneous cell lines | P44 |
| <i>Jane Anastassopoulou (Greece)</i> - The role of Zinc in DNA structure | P45 |
| <i>Massimiliano Peana (Italy)</i> - Is PARK9 protein a manganese transporter protein? | O50 |



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WEDNESDAY 22ND JUNE

| | | |
|--------------|---|------------|
| 8.30 | Morning Coffee (Foyer: 1st floor) | |
| 9.00 | INORGANICS IN CANCER, IMAGING OR THERAPEUTICS: PART I <i>Chairs: Philippe Collery (France) and Gerard Bastian (France)</i> | |
| 9.05 | <u>Kevin Brindle (UK)</u> – Keynote Lecture: Detecting tumour responses to treatment using hyperpolarized ¹³C magnetic resonance spectroscopic imaging | 028 |
| 9.35 | <i>Theophile Theophanides (Greece)</i> - Demineralization of bones due to breast cancer metastasis: an infrared study. | 029 |
| 10.00 | <i>Maria Torre (Uruguay)</i> - Antioxidant, pro-oxidant properties and antiproliferative activity of homoleptic and heteroleptic copper complexes. Potential antitumoral species. | 031 |
| 10.30 | Coffee Break (Foyer: 1st floor) | |
| 11.00 | INORGANICS IN CANCER, IMAGING OR THERAPEUTICS: PART II | |
| 11.05 | <i>Gérard Bastian (France)</i> - In vitro antitumor activity of a new diselenate rhenium complex. | 030 |
| 11.30 | <i>Helen Reid (UK)</i> - Sub-cellular distribution and speciation of platinum in human cells after in vitro and in vivo treatments with platinum-based combination therapies | 032 |
| 11.55 | <i>Fazlul Huq (Australia)</i> - Platinums in combination with phytochemicals applied to the human ovarian tumour models | 034 |
| 12.30 | Lunch break (Fellow's dining room) | |
| 14.00 | INORGANICS IN CANCER, IMAGING OR THERAPEUTICS: PART III <i>Chairs: Philippe Collery (France) and Maria Torre (Uruguay)</i> | |
| 14.05 | <i>Paul Tchounwou (USA)</i> – Trisenox-based chemotherapy of acute promyelocytic leukemia: molecular mechanisms of action | 036 |
| 14.30 | <i>Alice Walker (USA)</i> - Analysis of Stress and Apoptotic Protein Expressions in Arsenic Trioxide -Treated Lung Cancer Cells | 035 |
| 14.55 | <i>Raven Byrd (USA)</i> - Ascorbic Acid and Arsenic Trioxide Show In Vitro Promise as a Treatment Option for Drug Resistant Lymphoma | 033 |
| 15.30 | Coffee Break (Foyer: 1st floor) | |
| 16.00 | INORGANICS IN CANCER, IMAGING OR THERAPEUTICS: PART IV | |
| 16.05 | <i>Jacqueline Stevens (USA)</i> - Arsenic Trioxide Induces DNA Damage and Apoptosis in Human Colon HT-29 Cancer Cells through Oxidative Stress | 037 |
| 16.30 | <i>Erika Brown (USA)</i> Arsenic-Induced Genotoxicity and Apoptosis in Hepatocellular Carcinoma (HepG2) Cells: Influence of Oxidative Stress | 048 |
| 17.00 | Closing | |
| 19.00 | FORMAL DINNER (Great Hall) | |

