

## PROGRAM AT A GLANCE

DAY TIME	SUNDAY Oct 21	MONDAY Oct 22	TUESDAY Oct 23	WEDNESDAY Oct 24	THURSDAY Oct 25	FRIDAY Oct 26
7:30		<b>FOYER</b> Registration	<b>FOYER</b> Registration	<b>FOYER</b> Registration	<b>FOYER</b> Registration	<b>FOYER</b>
8:00		<b>OLYMPUS</b> Posters set up for Poster Session #1		<b>OLYMPUS</b> Posters set up for Poster Session #2	<b>OLYMPUS</b> Posters set up for Poster Session #3	
9:00		<b>MINOS</b>  Opening Ceremony	<b>MINOS</b>	<b>MINOS</b>	<b>MINOS</b>	<b>MINOS</b>
		<b>Plenary Session #1</b>	<b>Plenary Session #2</b>	<b>Plenary Session #3</b>	<b>Plenary Session #4</b>	<b>Symposium H</b>
		<b>Part 1.</b> <b>Keynote Address:</b> "Mediterranean diet, traditional foods and health," <b>A. Trichopoulou</b>	<b>Part 1.</b> <b>Raulin Award:</b> "Zinc nutriture and fetal origins of disease," <b>H. Sandstead</b>	<b>Trace Element Speciation</b> "Challenges in trace metal speciation of workroom air exposures," <b>Y. Thomassen</b>	<b>Trace Element Deficiencies</b> "Trace element nutrition: a neglected health issue in developing countries," <b>M. Abdulla</b>	<b>Zinc and the Common Cold</b> "Zinc and the common cold: aspects of solution chemistry," <b>G. Eby</b>
		<b>Part 2.</b> <b>Trace minerals: Modulators of Arterial Function</b> "Manganese: regulator of vasomotor tone and arterial glycosaminoglycan metabolism," <b>D. Klimis-Zacas and A. Kalea</b>	<b>Part 2.</b> <b>Trace element nutrition and dietary recommendations</b> "The relevance of trace element nutrition in human health," <b>S. Ermidou-Pollet</b>	"Analytical challenges to human trace element speciation," <b>R. Lobinski</b>	"Investigation on the transport of trace elements across barriers in human: Studies of placental and mammary transfer. Impact on possible deficiencies in infancy," <b>E. Rossipal</b>	"Treatment of the common cold with zinc: effect on pro- inflammatory cytokine (soluble interleukin-1 receptor antagonist) and ICAM-1," <b>A. Prasad</b>
		"The role of copper in nitric oxide mediated vasodilation," <b>D. Schuschke</b>	"International dietary standards for trace elements," <b>J. Freeland-Graves</b>	"Studies on the biotransformation of arsenic and selenium in humans," <b>K. Francesconi</b>	"Trace element deficiency treatment: much more than trace element supplementation," <b>I. Djujic</b>	<i>ISTERH Business Meeting</i>
		"Selenium status and regulation of vascular homeostasis," <b>L. Sordillo</b>	"Future dietary standards for trace elements," <b>L. Allen</b>	"Purification and identification of low molecular fraction of selenium species in liver cytosol by high performance liquid chromatography and tandem mass spectrometric techniques," <b>Y. Lu</b>	"Predicting relative concentrations of bioavailable iron using in vitro approaches," <b>M. Kapsokefalou</b>	
			"Arsenic biomonitoring in children playing on chromated copper arsenate-treated playgrounds", <b>K. Lew</b>	"Iodine in the food chain of animals and man: intake, balance and requirement," <b>M. Anke</b>		
12:30		<b>ROOM G</b> Delegate Lunch (Lunch gratis)	<b>Bus boarding for excursion and box lunch</b>	<b>OPEN LUNCH</b>	<b>OPEN LUNCH</b>	<b>CONFERENCE CLOSED</b>

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<b>13:30</b>		<p><b>OLYMPUS</b> Poster Session #1</p> <p><b>(P-1 to P-35)</b> <b>Category 1</b></p> <p>Trace Element Intakes, Dietary Patterns, Bioavailability, and Tissue Distributions</p> <hr/> <p><b>(P-36 to P-54)</b> <b>Category 2</b></p> <p>Cancer and Oxidative Stress</p>	<p><b>EXCURSION</b></p>	<p><b>OLYMPUS</b> Poster Session #2</p> <p><b>(P-1 to P-6)</b> <b>Category 3</b></p> <p>Anemias, and Cardiovascular and Pulmonary Diseases</p> <hr/> <p><b>(P-7 to P-12)</b> <b>Category 4</b></p> <p>Diabetes Mellitus, Metabolic Syndrome X, and Obesity</p> <hr/> <p><b>(P-13 to P-18)</b> <b>Category 5</b></p> <p>Disorders of Aging</p> <hr/> <p><b>(P-19 to P-27)</b> <b>Category 6</b></p> <p>Fetal Development and Pediatric Disorders</p> <hr/> <p><b>(P-28 to P-35)</b> <b>Category 7</b></p> <p>Infectious Diseases and Immune Disorders</p> <hr/> <p><b>(P-36 to P-38)</b> <b>Category 8</b></p> <p>Molecular Nutrition for the Clinician</p> <hr/> <p><b>(P-39 to P-47)</b> <b>Category 10</b></p> <p>Osteoporosis and Other Bone Disorders</p>	<p><b>OLYMPUS</b> Poster Session #3</p> <p><b>(P-1 to P-18)</b> <b>Category 9</b></p> <p>Neurological Diseases &amp; Neuropsychological Impairment</p> <hr/> <p><b>(P-19 to P-44)</b> <b>Category 11</b></p> <p>Toxicity of Trace Elements</p> <hr/> <p><b>(P-45 to P-57)</b> <b>Category 5</b></p> <p>Trace Element Detection and Quantification</p>	

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14:30	FOYER Registration	<i>Concurrent Symposia (A, B) and Minisymposia (1, 2, 3)</i>		<i>Concurrent Symposia (C, D, E) and Minisymposia (4, 5, 6)</i>	<i>Concurrent Symposia (F, G) and Minisymposia (7, 8, 9)</i>	
		<b>MINOS Symposium A</b>		<b>MINOS Symposium C</b>	<b>MINOS Symposium F</b>	
		<b><u>Copper in Neurologic and Neurodegenerative Diseases</u></b>		<b><u>Environmental Stress and Mineral Homeostasis</u></b>	<b><u>Mineral Elements and Molecular Signaling as it Relates to Human Disease</u></b>	
		“Overview of the role of copper in neurologic and neurodegenerative diseases and potential treatment with tetrathiomolybdate,” <b>G. Brewer</b>		“Overview of human physiological responses to environmental extremes,” <b>A. Young</b>	“Role of zinc in endothelial cell function: implications in atherosclerosis,” <b>B. Hennig</b>	
		“Copper, cholesterol, and cognition: animal and human evidence,” <b>L. Sparks</b>		“Iron homeostasis in environmental extremes,” <b>J. McClung</b>	“Oxidative stress in tumor progression: intervention by selenium,” <b>P. Brenneisen</b>	
		“Excess of serum ‘free’ copper in patients with Alzheimer’s Disease,” <b>R. Squitti</b>		“Mineral homeostasis at high altitude: focus on antioxidants,” <b>A. Subudhi</b>	“Influence of zinc on oxidative stress, DNA integrity and cancer risk,” <b>E. Ho</b>	
		“Dietary fat and copper effects on cognition,” <b>M. Morris</b>		“Mineral homeostasis during spaceflight: bone demineralization,” <b>S. Smith</b>	“Maintaining copper balance: roles of copper transporters and chaperones,” <b>J. Bertinato</b>	
		“Investigations on the role of copper in human neurodegenerative disease using model systems,” <b>J. Camakaris</b>		“Mineral losses during extreme environmental conditions,” <b>H. Lukaski</b>		

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14:30	ATHENA- ARTEMIS Symposium B		ATHENA- ARTEMIS Symposium D	ATHENA- ARTEMIS Symposium G	
	<u>Health Effects of Low Dose Exposure to Toxic Metals</u>		<u>Molecular mechanisms of metal induced disease</u>	<u>Is copper involved in carcinogenesis/ carcinostatics?</u>	
	<p>“Proteomic and metabolomic biomarkers for assessing low dose toxic trace element interactions: an overview,” <b>B. Fowler</b></p> <p>“Neurological and renal effects of low dose exposure to elemental mercury from amalgam in children,” <b>L. Barregard</b></p> <p>“Manganese exposure as a determinant of Parkinsonian damage,” <b>R. Lucchini</b></p> <p>“Kidney and bone effects of low dose cadmium exposure in Sweden,” <b>A. Akesson</b></p> <p>“Factors influencing dose-response relationships of cadmium in humans - diabetes, metallothionein and metallothionein antibodies,” <b>T. Jin</b></p>		<p>“Changes in dietary iron levels affect brain manganese accumulation and distribution,” <b>M. Aschner</b></p> <p>“Molecular carcinogenicity of nickel ions targets HIF-1 prolyl hydroxylases and histone-3 lysine 9 demethylases,” <b>M. Costa</b></p> <p>“Reprogramming of histone marks by chromium,” <b>A. Puga</b></p> <p>“Arsenic cardiomyopathy and molecular mechanism,” <b>J. Kang</b></p>	<p>“Possible association of Wilson’s disease with hepatocellular carcinoma,” <b>Y.-H. Gu</b></p> <p>“Carcinogenesis in LEC rat and patients with Wilson disease,” <b>N. Shimizu</b></p> <p>“The effects of copper on carcinoma development and angiogenesis,” <b>M. Ebara</b></p> <p>“Copper transporters regulate the cellular pharmacology of cisplatin,” <b>S. Howell</b></p>	

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14:30	<p>EUROPA-DANAE Minisymposium 1</p> <p><u>Selected Abstracts</u> (Category 1)</p> <p>LEDA Minisymposium 2</p> <p><u>Selected Abstracts</u> (Category 2)</p> <p>APHRODITE Minisymposium 3</p> <p><u>Selected Abstracts</u> (Categories 3, 7)</p>		<p>EUROPA-DANAE Symposium E</p> <p><u>Advances in Analytical Detection of Trace Elements in Biological Tissues</u></p> <p>"Ion and electron beams methods for biological trace element characterization at bioceramics/cells interface," <b>E. Jallot</b></p> <p>"X-ray fluorescence technique on trace element determination in biological samples," <b>M. L. de Carvalho</b></p> <p>"Alternative testing methods in food nanoparticles toxicology research for a safe food nanotechnology development," <b>E. Sabbioni</b></p> <p>Minisymposium 4 <u>Selected Abstracts</u> (Category 12)</p> <p>LEDA Minisymposium 5</p> <p><u>Selected Abstracts</u> (Categories 4,6,10)</p> <p>APHRODITE Minisymposium 6</p> <p><u>Selected Abstracts</u> (Category 8)</p>	<p>EUROPA-DANAE Minisymposium 7</p> <p><u>Selected Abstracts</u> (Categories 9, 5)</p> <p>LEDA Minisymposium 8</p> <p><u>Selected Abstracts</u> (Category 11)</p> <p>APHRODITE Minisymposium 9</p> <p><u>Micronutrients in Intellectual Development</u></p>	
17:30	<p><b>LYCHNO STATIS OPENING RECEPTION</b></p> <p><b>OLYMPUS</b> Poster Session #1 (Posters Removed)</p>		<p><b>OLYMPUS</b> Poster Session #2 (Posters Removed)</p>	<p><b>OLYMPUS</b> Poster Session #3 (Posters Removed)</p>	
20:00				<p><b>CRETA MARIS</b></p> <p><b>BANQUET</b></p>	

# COMPLETE PROGRAM

## SUNDAY AFTERNOON, October 21, 2007

### 14:30 FOYER

Registration desk opens

### 17:30-17:45 Main entrance to Creta Maris Hotel

Board free shuttle to Opening Reception (taxis available at delegate expense after this period)

### 17:45-21:00 "LYCHNOSTATIS", the Cretan open-air Museum

17:45 Delegates stroll through the winding alleys of a garden lined with native fruit-trees; smell the aromatic herbs of Crete; visit two typical Cretan houses of the late 19th century, a white-washed chapel, restored windmill, shepherd's-shelter, threshing - floor, olive-oil factory, bee's and wax-house, workshops of weaving, plant-dyeing wool and ceramics.



18:30 Grape-treading in the Museum wine vats; audio-visual slide-show about Crete

19:15 Traditional Cretan food

### 20:30 Main entrance of LYCHNOSTATIS

Board shuttle back to Creta Maris Hotel

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## MONDAY MORNING, October 22

### 7:30 Foyer

Registration desk opens

### 7:30 OLYMPUS

Speaker Ready Room

### 8:00 OLYMPUS

Monday posters open. Presentation time: 13:30-14:30

### 8:00 OLYMPUS

Commercial Exhibits

### 9:00-9:30 MINOS

### 9:00 Welcome and Opening Ceremony

Mr. Serafim Tsokas, Governor of the Region of Crete

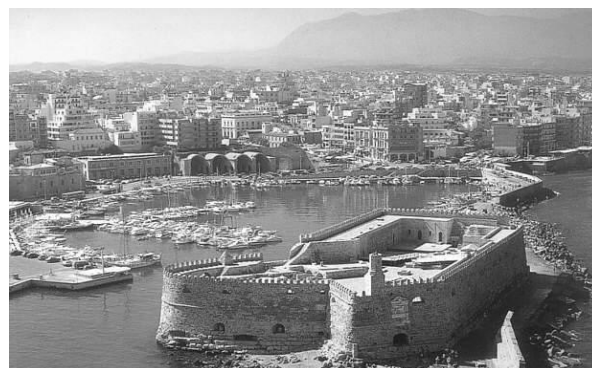
Ms. Evangelia Shinaraki-Iliaki, Prefect of Heraklion

Mr. Spiros Danellis, Mayor of Hersonissos

Mr. Nikos Skoulas, President of Trinity College, Crete, Greece; Past Minister of Hellenic Tourism

Dr. Curtiss D. Hunt, President, International Society for Trace Element Research in Humans (ISTERH)

Prof. Sophie Ermidou-Pollet, President, Hellenic Trace Element Society (HTES)



**Dr. Ole Andersen**, Representative, Nordic Trace Element Society (NTES)

**Dr. Dorothy Klimis-Zacas**, Chair, Conference Local Organizing Committee

**Members of the ISTERH/NTES/HTES '07 Organizing Committee on Platform**

**Curtiss Hunt**, Chair, Organizing Committee; President, ISTERH

**Sophie Ermidou-Pollet**, President, HTES

**Ole Andersen**, Representative, NTES

**Dorothy Klimis-Zacas**, Chair, Local Organizing Committee; Member, ISTERH

**Monica Nordberg**, Chair, Abstract Committee; Vice-President, ISTERH

**Jeanne Freeland-Graves**, Chair, Fundraising Committee; Council Member, ISTERH

**Hiroko Kodama**, Chair, Publicity Committee; Secretary, ISTERH

**Serge Pollet**, Member at Large; Vice-President, HTES

**George Brewer**, Member at Large; Council Member, ISTERH

**Harold Sandstead**, Member at Large; Immediate Past-President, ISTERH

**9:40-10:40 MINOS**

Plenary Session #1 (Part 1): **Keynote Address**

*Chair:* **Dorothy Klimis-Zacas**

*Co-Chair:* **Mary Yannakoulia**

9:40 "Mediterranean Diet, Traditional Foods and Health", **Antonia Trichopoulou**

10:40 Delegate Coffee Break (OLYMPUS)

**11:10-12:30 MINOS**

Plenary Session #1 (Part 2): **"Trace Minerals: Modulators of Arterial Function"**

*(ISTERH/NTES/HTES '07 acknowledges the generous support from the ARISTIDES DASKALOPOULOS FOUNDATION , HAROKOPIO UNIVERSITY, and the WILD BLUEBERRY ASSOCIATION OF NORTH AMERICA)*

*Chair:* **Dorothy Klimis-Zacas**

*Co-Chair:* **Mary Yannakoulia**

*Purpose of Session:* Recent advances in molecular biology and biochemistry have uncovered the crucial role trace minerals play on the vascular endothelium and cardiovascular disease. Current research on the role(s) manganese, selenium and copper have in cell-signaling, expression of cytoprotective genes and vascular and microvascular regulation will be discussed in this session. Manganese has been documented to be involved in arterial glycosaminoglycan metabolism and structure resulting in atheroprotection. Additionally, manganese is critical in maintenance of vasomotor tone by affecting the nitric oxide and cyclo-oxygenase pathways. Selenium as a component of potent antioxidant enzymes, the selenoproteins, directly neutralizes proatherogenic reactive oxygen species. The regulatory role of individual selenoproteins in orchestrating the expression of genes necessary for endothelial cell survival during oxidant stress through their ability to control redox sensitive signaling events will be discussed. Dietary copper and cuproenzymes play a significant role in microvascular control mechanisms such as endothelium-dependent regulation of arteriolar vascular smooth muscle. Dietary copper deficiency, with its resultant inactivation of cuproenzymes, affects nitric oxide-mediated dilation, increases superoxide anion (O<sub>2</sub>) production and decreases NO availability.

11:10 "Manganese: modulator of vascular function, structure and metabolism", **Dorothy Klimis-Zacas and A. Kalea**

11:40 "The role of copper in nitric oxide mediated vasodilation", **Dale Schuschke**

12:10 "Selenium status and regulation of vascular homeostasis", **L. Sordillo**

Delegate Lunch (covered in registration fee)

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## MONDAY AFTERNOON, October 22

13:30-14:30 OLYMPUS

### POSTER SESSION 1

#### Category 1: Trace Element Intakes, Dietary Patterns, Bioavailability, and Tissue Distributions

*Chair: Sophie Ermidou-Pollet and Serge Pollet*

*Co-Chair: Ivana Djujic*

*Co-Chair: Manfred Anke*

*Co-Chair: Tadeusz Kosla*



*P-1* 1.P01 **THE EFFECT OF ENRICHMENT WITH SUNFLOWER SEED, SESAME SEED AND ALPHA TOCOPHEROL ACETATE TO LINOLEIC ACID QUANTITY IN COOKIES.** Sumalika Piammongkol and Patcharin Pakdeechuan. Prince of Songkla University (Pattani, Thailand)

*P-2* 1.P02 **ESTIMATION OF THE POTENTIALLY BIOAVAILABLE FRACTION OF COPPER AND ARSENIC IN SOILS BY DGT.** Ilenia Cattani, Raffaella Boccelli, Ettore Capri, and Attilio A.M. Del Re. Università Cattolica del Sacro Cuore (Cremona, Italy)

*P-3* 1.P03 **RESEARCH STUDIES RELATED TO THE IMPACT OF ENVIRONMENTAL EXPOSURE TO BORON ON PEOPLE LIVING IN TURKIYE.** Sinem Karakas, and Erk Inger. National Boron Research Institute (Ankara, Turkey)

*P-4* 1.P04 **MOLYBDENUM IN THE ENVIRONMENT IN CONNECTION WITH BIOLOGICAL EFFECTS.** Vadim Ermakov, and Angelina Soboleeva. V.I. Vernadsky Institute of Geochemistry and Analytical Chemistry (Moscow, Russian Federation)

*P-5* 1.P05 **ASSESSMENTS OF EXPOSURE TO DIETARY TRACE ELEMENTS IN CHINA.** Junquan Gao<sup>1</sup>, Xiaowei Li<sup>1</sup>, Xiaoxi Liu<sup>1</sup>, and Liping Liu<sup>2</sup>. <sup>1</sup>National Institute for Nutrition and Food Safety, Chinese Center for Disease Control and Prevention (Beijing, China); <sup>2</sup>Beijing CDC (Beijing, China)

*P-6* 1.P06 **Open.**

*P-7* 1.P07 **BENEFICIAL ROLE OF MONOTHIOLS ALONG WITH MAGNESIUM IN THE MOBILIZATION OF MERCURY: A POSSIBLE MECHANISM.** Varsha Singh<sup>1</sup>, Mohamed Abdulla<sup>2</sup>, Sadhana Shrivastava<sup>1</sup>, and Sangeeta Shukla<sup>1</sup>. <sup>1</sup>Jiwaji University (Gwalior, India); <sup>2</sup>Trace Element- Institute for UNESCO, (LYON, France)

*P-8* 1.P08 **TRACE ELEMENTS IN THE DIGESTIVE SYSTEM OF THE RAT.** Heloisa Bordallo, Torsten Bartz, Dorothea Alber, and Antonios Kyriakopoulos. Hahn-Meitner-Institut (Berlin, Germany)

*P-9* 1.P09 **LYSOSOMES OF THE GASTRIC MUCOSA CELLS: A SITE OF ACCUMULATION OF ALUMINIUM AND INDIUM.** Tekaya Leila, Maghraoui Samira, Maaroufi Houcine, and Ayadi Ahlem. Faculty of Medicine of Tunis (Ariana, Tunisia)

*P-10* 1.P10 **STUDENT TRAVEL COMPETITION AWARDEE: MIXED EXPOSURE TO NEPHROTOXIC METALS IN A BANGLADESHI POPULATION WITH PREVALENT MALNOURISHMENT AND RISKS FOR KIDNEY EFFECTS.** Anna-Lena Lindberg<sup>1</sup>, Shams El Arifeen<sup>2</sup>, Mahfuzar Rahman<sup>2</sup>, Lars-Åke Persson<sup>3</sup>, Eva-Charlotte Ekström<sup>3</sup>, Marie Vahter<sup>4</sup>, Alfred Bernard<sup>5</sup>, and Marika Berglund<sup>4</sup>. <sup>1</sup>Karolinska Institute (Stockholm, Sweden); <sup>2</sup>International Centre for Diarrhoeal Disease Research (ICDDR,B) (Dhaka, Bangladesh); <sup>3</sup>International Maternal and Child Health, Uppsala University (Uppsala, Sweden); <sup>4</sup>Institute of Environmental Medicine, Karolinska Institute (Stockholm, Sweden); <sup>5</sup>University of Louvain (Brussels, Belgium)

*P-11* 1.P11 **CONTAMINATION OF SELECTED FOOD BY HEAVY METALS.** Jozef Golian, Peter Zajac, Robert Toman, and Branislav Siska. Slovak Agricultural University (Nitra, Slovakia)

*P-12* 1.P12 **INVESTIGATION OF INTERRELATIONSHIPS BETWEEN HAIR AND WHOLE BLOOD MACRO AND TRACE ELEMENT CONTENTS IN HUMANS.** Anatoly Skalny<sup>1</sup>, Andrei Grabeklis<sup>1</sup>, Sergey Nadorov<sup>2</sup>, and Margarita Skalnaya<sup>3</sup>. <sup>1</sup>Institute of General Pathology and Pathophysiology RAMS (Moscow, Russian Federation); <sup>2</sup>Institute of Pharmacology RAMS (Moscow, Russian Federation); <sup>3</sup>ANO "Centre or Biotic Medicine" (Moscow, Russian Federation)

*P-13* 1.P13 **A NATION-WIDE SURVEY OF TRACE ELEMENTS IN LYNX, WOLVERINES, WOLVES AND BROWN BEARS IN NORWAY.** Trond Peder Flaten<sup>1</sup>, Lars Haug Andersen<sup>2</sup>, Aase Marie Hersleth Holsen<sup>3</sup>, Vivian Grønhaug Ottemo<sup>3</sup>, Hans Christian Pedersen<sup>4</sup>, Eiliv Steinnes<sup>3</sup>, Syverin Lierhagen<sup>3</sup>, and Bjørn Munro Jenssen<sup>2</sup>. <sup>1</sup>Norwegian University of Science and Technology



(Trondheim, Norway); <sup>2</sup>Norwegian University of Science and Technology, Department of Biology (Trondheim, Norway); <sup>3</sup>Norwegian University of Science and Technology, Department of Chemistry (Trondheim, Norway); <sup>4</sup>Norwegian Institute for Nature Research (Trondheim, Norway)

**P-14 1.P14 IRON-ZINC-COPPER INTERACTIONS IN EDIBLE INSECT JUMIL BUG EUCHISTUS TAXCOENSIS A.** Virginia Melo<sup>1</sup>, Ma. Del Carmen Herrera<sup>2</sup>, Jorge Rivero<sup>3</sup>, Edilerto Castrejon<sup>4</sup>, and Jose Salas<sup>4</sup>. <sup>1</sup>Universidad Autonoma Metropolitana-X (Mexico, Mexico); <sup>2</sup>Uam-I (Mexico, Mexico); <sup>3</sup>Unam-Cch-Oriente (Mexico, Mexico); <sup>4</sup>Uam-X (Mexico, Mexico)

**P-15 1.P15 MERCURY IN URINE AFTER DENTAL RESTORATION.** Syverin Lierhagen<sup>1</sup>, and Tore Syversen<sup>2</sup>. <sup>1</sup>Norwegian University of Science and Technology (Trondheim, Norway); <sup>2</sup>NTNU (Trondheim, Norway)

**P-16 1.P16 TRACE ELEMENTS IN BLOOD FROM DENTAL HEALTH PERSONNEL.** Tore Syversen<sup>1</sup>, Lars Evje<sup>2</sup>, Torgunn Qvenild<sup>3</sup>, Kristin Svendsen<sup>2</sup>, and Bjørn Hilt<sup>3</sup>. <sup>1</sup>Norwegian University of Science and Technology (Trondheim, Norway); <sup>2</sup>NTNU (Trondheim, Norway); <sup>3</sup>St.Olavs University Hospital (Trondheim, Norway)

**P-17 1.P17 INFLUENCE OF ORGANIC SELENIUM ADDITION IN FEED RATION ON MUSCLE TISSUE STRUCTURE AND MEAT QUALITY IN CALVES.** Svatoslav Hluchy, Robert Toman, and Juraj Cubon. Slovak Agricultural University (Nitra, Slovakia)

**P-18 1.P18 ENVIRONMENTAL RISKS OF POTENTIALLY TOXIC METALS MOBILISED FROM ACID SULPHATE SOILS IN FINLAND: A LITERATURE REVIEW.** Rasmus F ätmarsch<sup>1</sup>, Mats Åström<sup>2</sup>, and Kari-Matti Vuori<sup>3</sup>. <sup>1</sup>Åbo Akademi University (Åbo, Finland); <sup>2</sup>Department of Biology and Environmental Science, Kalmar University (Kalmar, Sweden); <sup>3</sup>Finnish Environment Institute and University of Oulu, Department of Biology (Oulu, Finland)

**P-19 1.P19 LEVELS OF SELECTED TRACE ELEMENTS IN BLOOD OF CZECH SCHOOL CHILDREN AND WOMEN.** Milena Cerna<sup>1</sup>, Andrea Batariova<sup>1</sup>, Vera Spevackova<sup>1</sup>, Maja Cejchanova<sup>1</sup>, Katerina Wranova<sup>2</sup>, Bohuslav Benes<sup>1</sup>, and Jiri Smid<sup>1</sup>. <sup>1</sup>National Institute of Public Health (Prague 10, Czech Republic); <sup>2</sup>National Institute of Public Health, Charles University Faculty of Science in Prague (Prague 10, Czech Republic)

**P-20 1.P20 TRACE ELEMENTS IN NUTRITIONAL SUPPLEMENTS.** Lars Evje, Marte Aurstad Aspnes, and Tore Syversen. Department of Neuroscience, Norwegian University of Science and Technology (Trondheim, Norway)

**P-21 1.P21 MINERALS AND PHYTATES CONTENT OF SOME COMPLEMENTARY FOODS FROM CAMEROON.** Marie Modestine Kana Sop<sup>1</sup>, Mathias Seifert<sup>2</sup>, Manfred Anke<sup>3</sup>, Donald Oberleas<sup>4</sup>. <sup>1</sup>University of Douala (Douala, Cameroon); <sup>2</sup>Research Institution (Detmold, USA); <sup>3</sup>University of Jena, Emeritus (Jena, Germany); <sup>4</sup>Texas Tech University (Emeritus) (Texas, USA)

**P-22 1.P22 ASSESSMENT OF MINERALS CONTENT AND ACID EXTRACTION IN MAIZE BASED COMPLEMENTARY FOODS FROM CAMEROON USING HR-ICP-MS.** Marie Modestine Kana Sop<sup>1</sup>, Marte Aspnes Aurstad<sup>2</sup>, Renate Meloe<sup>2</sup>, Lars Evje<sup>2</sup>, and Tore Syversen<sup>2</sup>. <sup>1</sup>University of Douala (Douala, Cameroon); <sup>2</sup>Norwegian University of Science and Technology (Trondheim, Norway)

**P-23 1.P23 EFFECT OF TRACE ELEMENTS IN A COMPLEX PREPARATE (IMMUNOVET-HBMTM) ON THE ABSORPTION FROM THE ANIMAL DIGESTIVE TRACT.** Jakab Laszlo, Nagy Gyula, and Kosa Emma. Szent Istvan University, Faculty of Veterinary Science

**P-24 1.P24 EFFECT OF ONE YEAR OF IRON/ZINC FORTIFICATION ON BODY IRON STORES OF CHILDREN AGED 1-4 YEARS.** Pratibha Dhingra<sup>1</sup>, Usha Dhingra<sup>2</sup>, Archana Sarkar<sup>1</sup>, Venugopal P Menon<sup>1</sup>, Robert E Black<sup>2</sup>, Saikat Deb<sup>2</sup>, and Sunil Sazawal<sup>2</sup>. <sup>1</sup>Center for Micronutrient Research, Annamalai University (New Delhi, India); <sup>2</sup>Johns Hopkins University (Baltimore, USA)

**P-25 1.P25 ELEVATED LEVELS OF SELENIUM IN THE TYPICAL DIET OF THE AMAZONIAN RIPARIAN POPULATION.** M élanie Lemire<sup>1</sup>, Fábio Sidonio de Barros Evangelista<sup>2</sup>, Elene Paltrineiri Nardi<sup>2</sup>, Myriam Fillion<sup>1</sup>, Jean R ény Dav é Guimar ães<sup>3</sup>, Fernando Barbosa Jr.<sup>2</sup>, and Donna Mergler<sup>1</sup>. <sup>1</sup>Centre de recherche interdisciplinaire sur la biologie, la sant é la soci é et l'environnement (CINBIOSE), Université du Québec à Montréal (Montréal, Canada); <sup>2</sup>Depto. de An áises Cl ínicas, Toxicológicas e Bromatológicas, Universidade de São Paulo (Ribeirão Preto, Brazil); <sup>3</sup>Instituto de Biof ísica, Universidade Federal do Rio de Janeiro (Rio de Janeiro, Brazil)

**P-26 1.P26 STUDY OF BIOAVAILABILITY AND TOXICITY OF ARSENIC AND MERCURY IN CHINESE PROPRIETY MEDICINES (CPM) USING AN ANIMAL MODEL.** Ujang Tinggi<sup>1</sup>, Ross Sadler<sup>1</sup>, Barry Noller<sup>2</sup>, Alan Seawright<sup>2</sup>, Jack Ng<sup>2</sup>, Michael Moore<sup>2</sup>, Kelli Cooper<sup>3</sup>, Garry Golding<sup>1</sup>, Henry Olszowy<sup>1</sup>, and Pieter Scheelings<sup>1</sup>. <sup>1</sup>Queensland Health Scientific Services (Brisbane, Australia); <sup>2</sup>University of Queensland (Brisbane, Australia); <sup>3</sup>Royal Melbourne Institute of Technology (Melbourne, Australia)

**P-27 1.P27 IRON BIOAVAILABILITY FROM GRASSHOPPERS: EDIBLE INSECTS VS SPINACH LEAVES.** Virginia Melo<sup>1</sup>, MA. Del Carmen Herrera<sup>2</sup>, and Jorge Rivero<sup>3</sup>. <sup>1</sup>UAM-X (MEXICO, Mexico); <sup>2</sup>UAM-I (MEXICO, Mexico); <sup>3</sup>UNAM-CCH-ORIENTE (MEXICO, Mexico)

**P-28 1.P28 THE ELEMENT COMPOSITION OF COW'S MILK OF MOSCOW REGION.** Svetlana P. Zamana, Victor N.

Kutrovsky, and Taras G. Fedorowsky. Scientific Research Agricultural Institute of Central Regions of Non-chernozem Zone (Nemchinovka, Moscow region, Russian Federation)

**P-29 1.P29 ARSENIC EXCRETION IN HEALTHY, NON-SMOKING ADULT NORWEGIANS: A RANDOMISED CONTROLLED SEAFOOD DIET TRIAL.** Marianne Molin<sup>1</sup>, Vibeke Telle-Hansen<sup>1</sup>, Lisbeth Dahl<sup>2</sup>, Stine Marie Ulven<sup>1</sup>, Marianne Holck<sup>1</sup>, Grete Skjeggstad<sup>1</sup>, Oddlaug Ledsaak<sup>1</sup>, Jens Sloth<sup>2</sup>, Arne Oshaug<sup>1</sup>, Kåre Julshamn<sup>2</sup>, and Helle Margrete Meltzer<sup>3</sup>. <sup>1</sup>Akershus University College (Lillestrom, Norway); <sup>2</sup>National Institute of Nutrition and Seafood Research (NIFES) (Bergen, Norway); <sup>3</sup>Norwegian Institute of Public health (Oslo, Norway)

**P-30 1.P30 INFLUENCE OF PROBIOTICS PREPARATIONS ON AN EXCHANGE OF HEAVY METALS.** Sergei Miroshnikov, Olga Kvan, Anatolii Skalny, Svyatoslav Lebedev, and Shamil Rahmatullin. Orenburg State University (Orenburg, Russian Federation)

**P-31 1.P31 INFLUENCE OF THE FERMENTAL PREPARATION ON THE ELEMENT STATUS OF CARP IN CONDITIONS OF VARIOUS NUTRITION SECURITY.** Elena Miroshnikova, Anatolii Skalny, and Aleksandr Barabash. Orenburg State University (Orenburg, Russian Federation)

**P-32 1.P32 MINERAL STATUS OF ENERGY ENTERPRISE WORKERS: RESULTS OF CORRECTION.** Oksana Baranova, Svetlana Notova, Anatolii Skalny, and Larisa Chadova. Orenburg State University (Orenburg, Russian Federation)

**P-33 1.P33 TRACE ELEMENT STATUS OF A BRAZILIAN ALTERNATIVE FOOD** Elisabete De Nadai Fernandes<sup>1</sup>, Peter Bode<sup>2</sup>, Claudio Gonzaga<sup>3</sup>, Clara Brandao<sup>4</sup>, Marcio Bacchi<sup>3</sup>, and Siu Mui Tsai<sup>3</sup>. <sup>1</sup>Nuclear Energy Center for Agriculture, University of Sao Paulo (Piracicaba, Brazil); <sup>2</sup>Delft University of Technology (Delft, Netherlands); <sup>3</sup>Nuclear Energy Center for Agriculture (Piracicaba, Brazil); <sup>4</sup>Ministry of Health (Brasilia, Brazil)

**P-34 1.P34 ROLE OF SELENIUM PHYSIOLOGY IN PREVENTION AND TREATMENT OF MERCURY TOXICITY.** Nicholas Ralston, and Laura Raymond. University of North Dakota (Grand Forks, USA)

**P-35 1.P35 MANGANESE STATUS IN FREE RANGING EUROPEAN BISONS FROM BIALOWIEZA PRIMEVAL FOREST.** Tadeusz KOŚLA, Ewa Małgorzata SKIBNIEWSKA, Aleksandra MARCZAK, Michał SKIBNIEWSKI, and Grażyna URBAŃSKA-SŁOMKA. Warsaw University of Life Sciences-SGGW, (Warsaw, Poland)

## Category 2: Cancer and Oxidative Stress

*Chair:* Emily Ho

*Co-Chair:* Bernard Hennig

**P-36 2.P01 TREATMENT OF ACUTE LYMPHOCYTIC LEUKEMIA USING ZINC ADJUVANT WITH CHEMOTHERAPY AND RADIATION-A CASE HISTORY AND HYPOTHESIS.** George Eby. George & Patsy Eby Foundation (Austin, TX, USA)

**P-37 2.P02 EFFECT OF SELENIUM SUPPLEMENTATION ON THE SERUM LEVEL OF PROSTATE-SPECIFIC ANTIGEN (PSA) IN HIGH PSA SUBJECTS.** Hiroshi Koyama<sup>1</sup>, Tetsuya Otani<sup>2</sup>, Yoko Katsuya<sup>1</sup>, Rizky Abdulah<sup>1</sup>, Kenji Kobayashi<sup>1</sup>, Kazuto Ito<sup>2</sup>, Kazuhiro Suzuki<sup>2</sup>, and Masami Murakami<sup>3</sup>. <sup>1</sup>Gunma University Graduate School of Medicine (Maebashi, Japan); <sup>2</sup>Department of Public Health, Gunma University Graduate School of Medicine (Maebashi, Japan); <sup>3</sup>Department of Clinical Laboratory Medicine, Gunma University Graduate School of Medicine (Maebashi, Japan)

**P-38 2.P03 SELECTED TRACE ELEMENTS AND CADMIUM CONCENTRATIONS IN MALIGNANT, HYPERTROPHIC, AND NORMAL PROSTATIC TISSUES.** Adam Darago<sup>1</sup>, Jan Taczalski<sup>2</sup>, Andrzej Sapota<sup>1</sup>, and Anna Kilanowicz<sup>1</sup>. <sup>1</sup>Medical University of Lodz (Lodz, Poland); <sup>2</sup>District Hospital (Zgierz, Poland)

**P-39 2.P04 RISK ANALYSIS OF SELENIUM IN KOREAN HEALTH-FUNCTIONAL FOODS.** Jong-Min Woo. Korea Food and Drug Administration (Seoul, Korea, R. of South Korea)

**P-40 2.P05 DESIGN, SYNTHESIS, AND INVESTIGATION OF COPPER (II) COMPLEX OF 3-AMINOFLAVONE (AF) WITH ANTICANCER ACTIVITY.** Justyn Ochocki<sup>1</sup>, Elzbieta Zyner<sup>1</sup>, Andrea Erxleben<sup>2</sup>, and Lukasz Glinka<sup>1</sup>. <sup>1</sup>Medical University (Lodz, Poland); <sup>2</sup>Chemistry Department (Galway, Ireland)

**P-41 2.P06 EFFECT OF FLUOXETINE ON TOLERANCE TO ANALGESIC EFFECT OF MORPHINE IN MICE WITH SKIN CANCER.** Alireza Mohajjel Nayebi<sup>1</sup>, Hassan Rezazadeh<sup>1</sup>, Yousef Parsa<sup>1</sup>, and Mohamed Abdulla<sup>2</sup>. <sup>1</sup>Tabriz University of Medical Sciences (Tabriz, Iran, Islamic Rep. of); <sup>2</sup>Trace Element Institute for UNESCO, International Center (Lyon, France)

**P-42 2.P07 INHIBITORY EFFECT OF CHROZOPHORA TINCTORA EXTRACT (METHANOL) ON FERRIC NITRILOTRIACETATE INDUCED OXIDATIVE STRESS IN RAT KIDNEY TISSUE.** Hassan Rezazadeh<sup>1</sup>, Abbas Delazar<sup>1</sup>, Alireza Mohajjel Nayebi<sup>1</sup>, and Mohamed Abdulla<sup>2</sup>. <sup>1</sup>Tabriz university of medical sciences (Tabriz, Iran, Islamic Rep. of); <sup>2</sup>Trace Element Institute for UNESCO, International Center (Lyon, France)

**P-43 2.P08 CLINICAL ELEMENTOLOGY IN ONCOLOGY: EXPERIENCES AND PROPOSALS FROM GERMANY.** Oliver

Micke<sup>1</sup>, Jens Büntzel<sup>2</sup>, Frank Bruns<sup>3</sup>, Michael Glatzel<sup>4</sup>, Robert Hunger<sup>5</sup>, Klaus Kisters<sup>6</sup>, and Ralph Mücke<sup>7</sup>. <sup>1</sup>Franziskus Hospital (Bielefeld, Germany); <sup>2</sup>Department of Otolaryngology, Südharz Hospital (Nordhausen, Germany); <sup>3</sup>Medical School of Hannover (Hannover, Germany); <sup>4</sup>Department of Radiotherapy, Central Hospital (Suhl, Germany); <sup>5</sup>German Working Group Trace Elements and Electrolytes - AKTE (Chur, Switzerland); <sup>6</sup>Department of Internal Medicine, St. Anna Hospital (Herne, Germany); <sup>7</sup>Department of Radiotherapy, St. Josefs Hospital (Wiesbaden, Germany)

**P-44 2.P09 EFFECTS OF LONG-TERM ANTIOXIDANT (SELENIUM AND VITAMIN E) AND IBUPROFEN ANTIOXIDANT THERAPY ON OXIDATIVE STRESS AND LIPID PEROXIDATION.** Liga Larmane<sup>1</sup>, Tija Zvagule<sup>2</sup>, Andrejs Skesters<sup>1</sup>, Alise Silova<sup>1</sup>, Kim Rainsford<sup>3</sup>, Nina Rusakova<sup>1</sup>, and Jelena Reste<sup>2</sup>. <sup>1</sup>Riga Stradin's University (Riga, Latvia); <sup>2</sup>P. Stradins Clinical University Hospital (Riga, Latvia); <sup>3</sup>Sheffield Hallam University (Sheffield, United Kingdom)

**P-45 2.P10 TRACE ELEMENTS LEVELS AND CANCER INCIDENCE IN EUROPE.** Jilang Pan<sup>1</sup>, Jane Plant<sup>1</sup>, K. Vala Ragnarsdottir<sup>2</sup>, and Nick Voulvoulis<sup>1</sup>. <sup>1</sup>Imperial College London (London, United Kingdom); <sup>2</sup>University of Bristol (Bristol, United Kingdom)A

**P-46 2.P11 TRACE ELEMENTS THAT PROTECT AGAINST THE FREE RADICAL: FACTOR ANALYSIS.** Nikola Ivicic, Nevenka Kopjar, Juraj Prejac, and Berislav Momcilovic. Institute for Medical Research and Occupational Health (IMI) (Zagreb, Croatia)

**P-47 2.P12 INVESTIGATION OF CYTOTOXIC EFFECTS OF THALLIUM ACETATE AND ELLAGIC ACID ON C6 CELL LINE.** Oge Basoglan, Filiz Susuz, and Zerrin Canturk. Anadolu University (Eskisehir, Turkey)

**P-48 2.P13 ASSOCIATION OF DIETARY MAGNESIUM AND DNA REPAIR CAPACITY WITH LUNG CANCER RISK.** Somdat Mahabir, Qingyi Wei, Margaret Spitz, and Michele Forman. University of Texas M. D. Anderson Cancer Center (Houston, Texas, USA)

**P-49 2.P14 TRACE ELEMENTAL CONSTITUTION OF PATIENTS WITH ORAL SUB-MUCOUS FIBROSIS AND LEUKOPLAKIA AND ITS POSSIBLE CORRELATION WITH ENDOGENOUS ANTIOXIDANT STATUS.** Anindita Chakraborty<sup>1</sup>, Sudarshan Mathummal<sup>1</sup>, Ranjan Ghosh<sup>2</sup>, Prem Gandhi<sup>2</sup>, and JoyGopal Roy<sup>2</sup>. <sup>1</sup>UGC-DAE Consortium for Scientific Research, Kolkata Centre (Kolkata, India); <sup>2</sup>R Ahmed Dental College (Kolkata, India)

**P-50 2.P15 CHARACTERIZATION OF TRACE ELEMENTS AND METALLOENZYMES AND ITS ASSOCIATION WITH THE IMMUNE STATUS IN ORAL CANCER PATIENTS.** Nabakanta Jana<sup>1</sup>, Anindita Chakraborty<sup>2</sup>, Surajit Bose<sup>3</sup>, JoyGopal Roy<sup>3</sup>, and Sudarshan Mathummal<sup>1,2</sup>. <sup>1</sup>CharuChandra College, (Kolkata, India); <sup>2</sup>UGC-DAE Consortium for Scientific Research, Kolkata Centre (Kolkata, India); <sup>3</sup>R Ahmed Dental College (Kolkata, India)

**P-51 2.P16 INVESTIGATION OF CYTOTOXIC EFFECTS OF THE BORON COMPOUNDS ON LEUKEMIA CELL LINE.** Zerrin Canturk<sup>1</sup>, Zafer Gulbas<sup>2</sup>, and Yagmur Tunalı<sup>1</sup>. <sup>1</sup>Anadolu University (Eskisehir, Turkey); <sup>2</sup>Osmangazi University (Eskisehir, Turkey)

**P-52 2.P17 SELENIUM SUPPLEMENTATION IN HEAD AND NECK SURGERY.** Jens Buentzel<sup>1,2</sup>, Michael Glatzel<sup>1,2</sup>, Frank Bruns<sup>2</sup>, Klaus Kisters<sup>2</sup>, Oliver Micke<sup>2,3</sup>, and Ralph Muecke<sup>2</sup>. <sup>1</sup>Suedharzkrankenhaus (Nordhausen, Germany); <sup>2</sup>AKTE (German Working Group "Trace Elements and Electrolytes in Oncology" (Bielefeld, Germany); <sup>3</sup>Franziskus Hospital (Bielefeld, Germany) (Bielefeld, Germany)

**P-53 2.P18 BORIC ACID AND PHENYL BORIC ACID CYTOTOXICITY IN BREAST CANCER CELL LINES.** Susan Meacham, Anu Elegbede, and Stephen Carper University of Nevada Las Vegas (Las Vegas, USA)

**P-54 2.P19 MECHANISM OF APOPTOSIS INDUCED BY COPPER IN PC12 CELLS.** Masaaki Kurasaki<sup>1</sup>, Masaki Kawakami<sup>1</sup>, Toshiyuki Hosokawa<sup>2</sup>, and Takeshi Saito<sup>3</sup>. <sup>1</sup>Hokkaido University, Faculty of Environmental Earth Science (Sapporo, Japan); <sup>2</sup>Hokkaido University, Higher Education (Sapporo, Japan); <sup>3</sup>Hokkaido University School of Medicine (Sapporo, Japan)

**14:30-17:30 Five Concurrent Sessions (Symposia A and B; Minisymposium #1, #2, and #3)**

### Symposium A--MINOS

#### **Copper in Neurologic and Neurodegenerative Diseases**

(ISTERH/NTES/HTES '07 acknowledges the generous support from **PIPEX PHARMACEUTICALS, INC** )

#### **Chair: George Brewer**

*Purpose of session:* The symposium will feature exciting new work implicating copper in Alzheimer's disease. This includes animal model work in which copper exacerbates Alzheimers – like pathology and symptoms, evidence in humans that higher copper levels in the diet accelerate cognitive decline, and evidence that Alzheimer's disease patients have elevated levels of “free” copper. The role of copper in other neurodegenerative diseases will also be discussed as well as therapeutic approaches to lowering copper levels.

14:30 "Overview of the role of copper in neurologic and neurodegenerative diseases and potential treatment with tetrathiomolybdate", **George Brewer**

15:00 "Copper, cholesterol, and cognition: animal and human evidence", **D. Larry Sparks**

15:30 "Excess of serum 'free' copper in patients with Alzheimer's Disease", **Rosanna Squitti**

16:00 Delegate Coffee Break (OLYMPUS)

16:30 "Dietary fat and copper effects on cognition", **Martha Clare Morris**

17:00 "Investigations on the role of copper in human neurodegenerative disease using model systems", **James Camakaris**

### **Symposium B--ATHENA-ARTEMIS**

#### **Health Effects of Low Dose Exposure to Toxic Metals**

Symposium organized in collaboration with the Scientific Committee on the Toxicology of Metals, International Commission on Occupational Health

*(ISTERH/NTES/HTES '07 acknowledges the generous support from FORMAS [The Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning], ATSDR [Agency for Toxic Substances and Disease Registry, U.S. Department of Health and Human Services] and ICOH [International Commission on Occupational Health])*

Chair: **Gunnar Nordberg**

Co-Chair: **Bruce Fowler**

*Purpose of session:* Recent data indicate that adverse effects on human health occurs at very low exposures to toxic metals. Effects have been shown even at background levels of exposure in groups of the general population. These effects are due to a combination of factors in addition to exposure to the toxic metal in question. Important factors are defective expression of chaperone proteins, combined exposure to other toxic substances and/or unfavorable life-style factors as well as genetic factors. This symposium aims at displaying recent findings in this field and to discuss these findings as a basis for future research. New research technologies should be employed (proteomics, metabolomics and genomics) for investigation of the health effects of the combined impact of the mentioned factors at low dose exposure to toxic metals.

14:30 "Introduction", **Gunnar Nordberg**

14:40 "Proteomic and metabolomic biomarkers for assessing low dose toxic trace element interactions: an overview", **Bruce Fowler**

15:10 "Neurological and renal effects of low dose exposure to elemental mercury from amalgam in children", **Lars Barregard**

15:40 "Manganese exposure as a determinant of Parkinsonian damage", **Roberto Lucchini**

16:10 Delegate Coffee Break

16:40 "Kidney and bone effects of low dose cadmium exposure in Sweden", **Agneta Akesson**

17:10 "Factors influencing dose-response relationships of cadmium in humans - diabetes, metallothionein and metallothionein antibodies", **Taiyi Jin**

### **Minisymposium 1--EUROPA-DANAE**

Chair: **Robert Yokel**

Co-Chair: **James Friel**

#### **Category 1: Trace Element Intakes, Dietary Patterns, Bioavailability, and Tissue Distribution**

14:30 1.S01 **ORAL ALUMINUM BIOAVAILABILITY FROM REPRESENTATIVE FOODS SHOWS FOOD PROVIDES MUCH MORE AL TO SYSTEMIC CIRCULATION, AND POTENTIAL AL BODY BURDEN, THAN DOES DRINKING WATER.** Robert Yokel<sup>1,2</sup>, and Rebecca Florence<sup>2</sup>. <sup>1</sup>University of Kentucky College of Pharmacy (Lexington, USA); <sup>2</sup>University of Kentucky College of Pharmacy (Lexington, USA)

14:45 1.S02 **BORON IN THE ENVIRONMENT AND HUMAN POPULATION OF SAN JUAN, ARGENTINA.** Neil Ward<sup>1</sup>, and Andrea Marcilla<sup>2</sup>. <sup>1</sup>University of Surrey (Guildford, United Kingdom); <sup>2</sup>University of Surrey (Guildford, United Kingdom)

15:00 1.S03 **STUDENT TRAVEL COMPETITION AWARDEE: FOOD-BASED STRATEGIES IMPROVE IRON STATUS IN**

**12-20 MONTH OLD NEW ZEALAND CHILDREN: A RANDOMISED CONTROLLED TRIAL.** Ewa Szymlek-Gay, Anne-Louise Heath, Elaine Ferguson, Andrew Gray, and Rosalind Gibson. University of Otago (Dunedin, New Zealand)

**15:15 1.S04 BIOAVAILABILITY OF SELENIUM IN BRAZIL NUTS.** Christine Thomson, and Alexandra Chisholm. University of Otago (Dunedin, New Zealand)

**15:30 1.S05 MOLYBDENUM CONTENT IN INFANT FORMULAS FROM NORTH AMERICA.** James Friel, Haifeng Yang, Rossel Sabourin, and Apollo Tsopmo. University of Manitoba (Winnipeg, Canada)

**15:45 1.S06 TRACE METAL ABUNDANCE SOIL AND GRASS IN ICELAND: LINKS WITH SHEEP SCRAPIE.** K. Vala Ragnarsdottir, and Darren J. Hawkins. University of Bristol (Bristol, United Kingdom)

*16:00 Delegate Coffee Break (OLYMPUS)*

**16:30 1.S07 BIOACCESSIBILITY OF ZINC IN WHOLE EGGS BY CONTINUOUS-FLOW DIALYSIS METHOD.** Hatairat Plaimast<sup>1,2</sup>, Prapaisri Sirichakwa<sup>1</sup>, Prapasri Puwastien<sup>1</sup>, Emorn Wasantwisut<sup>1</sup>, Kanchit Judprasong<sup>2</sup>, and Suwanna Kijparkorn<sup>2</sup>. <sup>1</sup>Institute of Nutrition, Mahidol university (Nakhon Pathom, Thailand); <sup>2</sup>Faculty of Veterinary Science, Chulalongkorn University (Thailand)

**16:45 1.S08 ANALYTICAL DATA ON IRANIAN TYPICAL DIETS AND ITS BIOAVAILABILITY ASPECT BY TRACE ELEMENTAL STUDY IN DAILY DIETS.** Ahmad Gharib. Amir Kabir University (Tehran, Islamic Rep. of Iran)

**17:00 1.S09 INVESTIGATION OF CHROMIUM, COPPER, COBALT AND MOLYBDENUM IN SOME CEREALS CONSUMED IN KENYA.** Fredrick Oduor. University of Nairobi (Nairobi, Kenya)

**17:15 1.S10 THE DIETARY BORON INTAKE IN CHINA.** Xiaowei Li, and Junquan Gao. National Institute for Nutrition and Food Safety, Chinese Center for Disease Control and Prevention (Beijing, China)

**17:30 1.S11 WOMEN'S ZINC ABSORPTION IS UNAFFECTED BY DIETARY CALCIUM, WITH OR WITHOUT HIGH-PHYTATE FOODS.** Janet Hunt<sup>1</sup>, and Jeannemarie Beiseigel<sup>2</sup>. <sup>1</sup>USDA/ARS/GFHNRC (Grand Forks, USA); <sup>2</sup>General Mills (Minneapolis, USA)

### Minisymposium 2--LEDA

*Chair: Ayhan O. Çavdar*

*Co-Chair: Renty Franklin*

### Category 2: Cancer and Oxidative Stress

**14:30 2.S01 CONCENTRATIONS OF SELECTED TRACE ELEMENTS, CADMIUM, AND STEROID HORMONES IN WOMEN WITH UTERINE MYOMAS .** Marzenna Nasiadek<sup>1</sup>, Ewa Swiatkowska<sup>2</sup>, Anna Nowinska<sup>2</sup>, and Andrzej Sapota<sup>1</sup>. <sup>1</sup>Medical University of Lodz (Lodz, Poland); <sup>2</sup>Polish Mother's Memorial Hospital-Research Institute (Lodz, Poland)

**14:45 2.S02 BORIC ACID AND PHENYL BORIC ACID INDUCE APOPTOSIS IN PROSTATE CANCER CELL LINES.** Stephen Carper, Casey Hall, and Susan Meacham. University of Nevada Las Vegas (Las Vegas, USA)

**15:00 2.S03 ZINC REGULATES NFKAPPAB AND AP1 TRANSCRIPTION FACTORS IN PROSTATE CANCER CELLS.** Renty Franklin, Jing Zou, and Leslie Costello. University of Maryland, Baltimore (Baltimore, USA)

**15:15 2.S04 EFFECTS OF SELENIUM ALONE AND WITH ANTIOXIDANTS AND IBUPROFEN MIXTURE IN CHERNOBYL CATASTROPHE CLEAN-UP WORKERS AT RISK OF DEVELOPING CANCER.** Andrejs Skesters<sup>1</sup>, Tija Zvagule<sup>2</sup>, Liga Larmane<sup>1</sup>, Kim Rainsford<sup>3</sup>, Alise Silova<sup>1</sup>, Nina Rusakova<sup>1</sup>, and Pavels Mustafins<sup>1</sup>. <sup>1</sup>Riga Stradin's University (Riga, Latvia); <sup>2</sup>P. Stradins Clinical University Hospital (Riga, Latvia); <sup>3</sup>Sheffield Hallam University (Sheffield, United Kingdom)

**15:30 2.S05 ARE PEOPLE WITH LOW SELENIUM AND ANTIOXIDANT STATUS AT MUCH HIGHER RISK OF CANCER?** Wojciech Wasowicz. Institute of Occupational Medicine (Lodz, Poland)

**15:45 2.S06 ZINC AND SELENIUM STATUS IN PEDIATRIC MALIGNANT LYMPHOMAS.** Ayhan O. Çavdar. Turkish Academy of Sciences (TÜBA) of Trace Element and UNESCO-Satellite Center (Ankara, Turkey)

*16:00 Delegate Coffee Break (OLYMPUS)*

**16:30 2.S07 ANTICANCER ACTIVITY OF SELENIUM-ENRICHED BROCCOLI SPROUTS IN HUMAN PROSTATE CANCER CELL LINES.** Rizky Abdulah<sup>1</sup>, Kenji Kobayashi<sup>1</sup>, Ahmad Faried<sup>2</sup>, Yoko Katsuya<sup>1</sup>, Tetsuya Otani<sup>1</sup>, Kazuto Ito<sup>3</sup>, Kazuhiro Suzuki<sup>3</sup>, Masami Murakami<sup>4</sup>, Hiroyuki Kuwano<sup>2</sup>, and Hiroshi Koyama<sup>1</sup>. <sup>1</sup>Department of Public Health, Gunma University, Graduate School of Medicine (Maebashi, Japan); <sup>2</sup>Department of General Surgical Science (Surgery I), Gunma University, Graduate School of Medicine (Maebashi, Japan); <sup>3</sup>Department of Urology, Gunma University, Graduate School of Medicine (Maebashi, Japan); <sup>4</sup>Department

of Clinical Laboratory Medicine, Gunma University, Graduate School of Medicine (Maebashi, Japan)

16:45 2.S08 **ADDING IRON TO WHITE TEA MAY DECREASE ITS ANTIOXIDANT CAPACITY IN HUMANS**. Antonis Koutelidakis, Maria Kapsokefalou, Michael Komaitis, and Dionysia Karambela Agricultural University of Athens (Athens, Greece)

### Minisymposium 3--APHRODITE

*Chair:* Tania Araujo-Jorge

*Co-Chair:* Muriel Bost

#### Category 3: Anemias, and Cardiovascular and Pulmonary Diseases

14:30 3.S01 **FISH INTAKE, FATTY ACIDS, MERCURY, SELENIUM AND RISK OF MYOCARDIAL INFARCTION – DESIGN OF A PROSPECTIVE CASE-CONTROL STUDY**. Maria Wennberg<sup>1</sup>, Ingvar Bergdahl<sup>1</sup>, Mats Eliasson<sup>2</sup>, G öran Hallmans<sup>3</sup>, Ulf Str ömberg<sup>4</sup>, Staffan Skerfving<sup>4</sup>, Thomas Lundh<sup>4</sup>, Bengt Vessby<sup>5</sup>, and Jan-H åkan Jansson<sup>3</sup>. <sup>1</sup>Occupational Medicine (Ume å Sweden); <sup>2</sup>Department of Medicine, Sunderby Hospital (Lule å Sweden); <sup>3</sup>Public Health and Clinical Medicine, Ume å University (Ume å Sweden); <sup>4</sup>Occupational and Environmental Medicine, University Hospital (Lund, Sweden); <sup>5</sup>Public Health and Caring Science, Uppsala University (Uppsala, Sweden)

14:45 3.S02 **EFFECT OF SELENIUM SUPPLEMENTATION ON HEART LESIONS PRODUCED BY NEUROLEPTICS**. Muriel Bost<sup>1,2</sup>, Violette Maffre<sup>3</sup>, Fanny Vaillant<sup>3</sup>, Bernard Bui-Xuan<sup>3</sup>, Alain Tabib<sup>4</sup>, Jacques Descotes<sup>5</sup>, Guy Chazot<sup>1</sup>, Quadiri Timour<sup>3,5</sup>. <sup>1</sup>Trace Element - Institute for UNESCO (Lyon, France); <sup>2</sup>Laboratoire d'Analyse de Trace, UF 21303, Biochimie, H ôpital Edouard Herriot (Lyon, France); <sup>3</sup>Laboratoire de Pharmacologie M édicale, INSERM ERI 22, Université Claude Bernard Lyon I (Lyon, France); <sup>4</sup>Institut de M édecine L égale (Lyon, France); <sup>5</sup>Centre Antipoison - Centre de Pharmacovigilance (Lyon, France)

15:00 3.S03 **MICRONUTRIENT TREATMENT IMPROVES CARDIAC DAMAGE IN MICE INFECTED WITH TRYPANOSOMA CRUZI**. Tania Araujo-Jorge<sup>1</sup>, Andrea P de Souza<sup>2</sup>, Monica Melo-Medeiros<sup>2</sup>, and Maria-Teresa Rivera<sup>2</sup>. <sup>1</sup>Funda ção Oswaldo Cruz (Rio de Janeiro, Brazil); <sup>2</sup>Instituto Oswaldo Cruz (Rio de Janeiro, Brazil)

#### Category 7: Infectious Diseases and Immune Disorders

15:15 7.S01 **EFFECTS OF COCKTAIL ANTIOXIDANT SUPPLEMENTATION ON OXIDATIVE STRESS IN AIDS**. Tuomas Westermarck<sup>1</sup>, Melita Sauka<sup>2</sup>, Guntar Selga<sup>2</sup>, Andrzej Skesters<sup>3</sup>, and Faik Atroshi<sup>4</sup>. <sup>1</sup>Rinneke Research Center (Espoo, Finland); <sup>2</sup>Institute of Sport Medicine (Riga, Latvia); <sup>3</sup>Riga Stradins University of Helsinki; <sup>4</sup>Pharmacology & Toxicology, ELTDK, University of Helsinki (Helsinki, Finland)

15:30 7.S02 **CURRENT CLINICAL PRACTICES FOR TRACE ELEMENTS SUPPLEMENTATION IN FRENCH BURN CENTRES**. Yves Chancerelle<sup>1</sup>, Sophie Spadoni<sup>2</sup>, Laurence Touvard<sup>1</sup>, Herve Carsin<sup>3</sup>, and Diane Agay<sup>1</sup>. <sup>1</sup>CRSSA (La Tronche, France); <sup>2</sup>ESSA (Bron, France); <sup>3</sup>CTB Percy (Clamart, France)

15:45 7.S05 **ADDING IRON TO ZINC REDUCED THE EFFICACY OF ZINC ON SERIOUS ADVERSE HEALTH OUTCOMES AMONG PRE-SCHOOL CHILDREN IN MALARIA ENDEMIC ISLAND OF PEMBA**. Sunil Sazawal<sup>1</sup>, Robert Black<sup>1</sup>, Usha Dhingra<sup>1</sup>, Girish Hirmat<sup>1</sup>, Mahdi Ramsaan<sup>2</sup>, and Fatma Mohammad<sup>3</sup>. <sup>1</sup>Johns Hopkins University (Baltimore, USA); <sup>2</sup>PHL-IDC Pemba (Pemba, Tanzania, United Rep. of); <sup>3</sup>Amref (Dar, United Rep. of Tanzania)

16:00 Delegate Coffee Break (OLYMPUS)

16:30 7.S04 **IRON HOMEOSTASIS IS CHANGED IN CHLAMYDOPHILA PNEUMONIAE INFECTED TISSUES**. Marie Edvinsson, Peter Frisk, Eva Hjelm, Goran Friman, Christina Nystrom-Rosander, and Nils-Gunnar Ilback. Uppsala University (Uppsala, Sweden)

#### **17:30-18:30 PENTE ISTERH Officers and Councilors Meeting 1**

*Officers:* Curtiss Hunt (President), Monica Nordberg (Vice-President), Hiroko Kodama (Secretary), Harold Sandstead (Immediate Past-President). *Councilors:* Jan Aaseth (NORWAY), Mohamed Abdulla (SWEDEN), Muriel Bost (FRANCE), George Brewer (USA) Ayhan Cavdar (TURKEY), Jeanne Freeland-Graves (USA), Rosalind Gibson (New Zealand), Forrest Nielsen (USA), Anne Roussel (FRANCE), Swapn Kumar Roy (BANGLADESH), Manuel Ruz (CHILE), Hiram Sakurai (JAPAN), Songsak Srianujata (THAILAND), Yoji Takagi (JAPAN), Neil Ward (UNITED KINGDOM), Leslie Woodhouse (USA)

18:00 Monday posters removed from boards in OLYMPUS

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## TUESDAY MORNING, October 23

### 7:00 Ancillary Function Breakfast

By invitation: Scientific Committee on the Toxicology of Metals, International Commission on Occupational Health (SCTM/ICOH)

### 7:30 Foyer

Registration

### 7:30 OLYMPUS

Speaker Ready Room

### 8:00 OLYMPUS

Commercial Exhibits

### 9:00-10:00 MINOS

Plenary Session #2, Part A: **RAULIN AWARD lecture**

*Chair:* **George Brewer**

*(ISTERH/NTES/HTES '07 acknowledges the generous support from **LABCATAL PHARMACEUTICAL**)*

*Purpose of Session:* Primary zinc deficiency, “highly unlikely” in 1959, now common, impairs gene expression and health of progeny. The essentiality of Zn for reproduction is known from experiments in model systems that began more than 50 years ago, and observations on humans that began more than 30 years ago. From this background it is clear Zn deficiency increases risk of abortion, teratology, fetal-stunting, prematurity, and residual functional abnormalities. That there is a problem in the USA, is suggested by the similar associations of iron (Fe) and Zn nutriture with food choices. Zinc is one of several micronutrients essential for metabolic imprinting that affects later health involves epigenetic mechanisms. Given the world prevalence of Zn deficiency, conservatively estimated at 20.5%, the contribution of developmental Zn nutriture to human health in later life begs clarification and application. At the same time, research is needed for understanding of how Zn nutriture affects metabolic imprinting in isolated cells, other species, and humans.

9:00 "Zinc nutriture and fetal origins of disease", **Harold H. Sandstead**

Presentation of Raulin Award by Catherine Suck, President of Labcatal Pharmaceutical

### 10:00-12:00 MINOS

Plenary Session #2, Part B: **Trace element nutrition and dietary recommendations**

*Chair:* **Jeanne Freeland-Graves**

*Co-Chair:* **Rebecca Costello**

*Purpose of Session:* Speakers in this session have worked with dietary requirements, international nutrition and dietary standards. Methods of development of dietary standards vary significantly throughout the world, from emphasis on prevention of deficiency diseases to optimal health. This symposium will make a global comparison of dietary standards of trace elements in developed, transitional and developing countries. Future needs for dietary standards in terms of new trace elements to be considered, as well as changes needed because of new scientific findings, will be a focus of this presentation.

10:00 "The relevance of trace element nutrition in human health", **Sophie Ermidou-Pollet**

10:30 Delegate Coffee Break (OLYMPUS)

11:00 "International dietary standards for trace elements", **Jeanne Freeland-Graves**

11:30 "Future dietary standards for trace elements", **Lindsay Allen**



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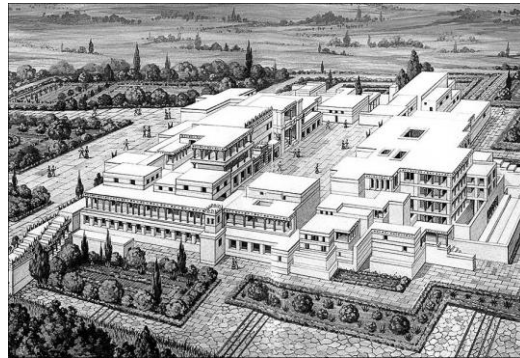
## TUESDAY AFTERNOON, October 23

**12:30** Boarding buses at the Creta Maris Hotel for excursion to Palace of Knossos.

Box lunch covered in registration fee; please inform the Secretariat whether you plan to participate

**18:00** Return to Creta Maris Hotel

Remainder of evening free



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## WEDNESDAY MORNING, October 24

**7:30 FOYER**

Registration

**7:30 OLYMPUS**

Speaker Ready Room

**8:00 OLYMPUS**

Wednesday posters open. Presentation time: 13:30-14:30

**8:00 OLYMPUS**

Commercial Exhibits

**9:00-12:00 MINOS**

Plenary Session #3: **Trace Element Speciation**

*Chair:* **Yngvar Thomassen**

*Co-Chair:* **Ryszard Lobinski**

*Purpose of Session:* This symposium presents the state of the art view on the importance of element speciation in the understanding and rationalization of the biological chemistry and toxicity of elements. The feasibility of speciation depends mainly on the capability to identify and determine element species and to demonstrate that species measurement represents a clear improvement compared to total element determination. The determination of the concentrations of separate and unique atomic and molecular forms of an element instead of its total concentration in a sample, is now a frequent exercise in many scientific disciplines. It has become important in human biology, nutrition, and toxicology - in clinical practice more generally it has yet to do so. The symposium will discuss examples of several areas in which considering speciation has contributed to our understanding of the interaction of metal and metalloid elements with the human organism.



**9:00** "Challenges in trace metal speciation of workroom air exposures", **Yngvar Thomassen**

**9:30** "Analytical challenges to human trace element speciation", **Ryszard Lobinski**

**10:00** "Studies on the biotransformation of arsenic and selenium in humans", **Kevin Francesconio**

**10:30** Delegate Coffee Break (OLYMPUS)

**11:00** "Purification and identification of low molecular fraction of selenium species in liver cytosol by high performance liquid chromatography and tandem mass spectrometric techniques", **Ying Lu and Spiros A. Pergantis**

**11:30** "Arsenic biomonitoring in children playing on chromated copper arsenate-treated playgrounds", **Kristi Lew, Jason Acker, and X. Chris Le**



12:00-13:30

Delegate Lunch (on your own)

12:00-13:30 PENTE

ISTERH Officers and Councilors Meeting 2

*Officers:* Curtiss Hunt (President), Monica Nordberg (Vice-President), Hiroko Kodama (Secretary), Harold Sandstead (Immediate Past-President). *Councilors:* Jan Aaseth (NORWAY), Mohamed Abdulla (SWEDEN), Muriel Bost (FRANCE), George Brewer (USA) Ayhan Cavdar (TURKEY), Jeanne Freeland-Graves (USA), Rosalind Gibson (New Zealand), Forrest Nielsen (USA), Anne Roussel (FRANCE), Swapan Kumar Roy (BANGLADESH), Manuel Ruz (CHILE), Hiram Sakurai (JAPAN), Songsak Srianujata (THAILAND), Yoji Takagi (JAPAN), Neil Ward (UNITED KINGDOM), Leslie Woodhouse (USA)

## WEDNESDAY AFTERNOON, October 24

13:30-14:30 OLYMPUS

### POSTER SESSION 2

#### Category 3: Anemias, and Cardiovascular and Pulmonary Diseases

*Chair:* Dale Schuschke

**P-1 3.P01 BLOOD ANTIOXIDANT MARKERS AND ELEMENTAL LEVELS IN AZOREAN PATIENTS WITH CORONARY ARTERY DISEASE: A PRELIMINARY STUDY.**

Rita Ferin<sup>1</sup>, Patrícia Napoleão<sup>2</sup>, Carla Gomes<sup>1</sup>, Ana Rita Castro<sup>1</sup>, Paula Alexandra Lopes<sup>3</sup>, Dinis Martins<sup>4</sup>, Maria Cristina Santos<sup>5</sup>, José Baptista<sup>1</sup>, Ana Maria Viegas-Crespo<sup>3</sup>, Teresa Pinheiro<sup>2</sup>, and Maria Leonor Pavão<sup>1</sup>. <sup>1</sup>CIRN, Universidade dos Açores (Ponta Delgada, Portugal); <sup>2</sup>ITN (Lisboa, Portugal); <sup>3</sup>CBA, Universidade dos Açores (Lisboa, Portugal); <sup>4</sup>Hospital do Divino Espírito Santo (Ponta Delgada, Portugal); <sup>5</sup>DQB, Universidade de Lisboa (Lisboa, Portugal).

**P-2 3.P02 BLOOD TRACE ELEMENT LEVELS IN PATIENTS WITH STABILIZED ATHEROSCLEROSIS.** Ana Maria Viegas Crespo<sup>1</sup>, Patrícia Napoleão<sup>1</sup>, Paula Lopes<sup>1</sup>, Maria Cristina Santos<sup>1</sup>, Maria Leonor Pavão<sup>2</sup>, and Maria Teresa Pinheiro<sup>3</sup>. <sup>1</sup>Faculdade de Ciências, Universidade Lisboa (Lisboa, Portugal); <sup>2</sup>CIRN, Universidade dos Açores (Ponta Delgada, Portugal); <sup>3</sup>Instituto Tecnológico e Nuclear (Lisboa, Portugal)

**P-3 3.P03 MAGNESIUM IN THE SERUM OF PATIENTS TREATED SURGICALLY.** J. Krystyna Sadlik<sup>1</sup>, Zbigniew Kopański<sup>2</sup>, Wojciech Piekoszewski<sup>1</sup>, and Małgorzata Schlegel-Zawadzka<sup>3</sup>. <sup>1</sup>Institute of Forensic Research (Kraków, Poland); <sup>2</sup>Department of Oncological Surgery, Military Clinical Hospital (Kraków, Poland); <sup>3</sup>Department Human Nutrition, Faculty of Health Care, Jagiellonian University (Kraków, Poland)

**P-4 3.P04 STUDENT TRAVEL COMPETITION AWARDEE: ZINC DEFICIENCY DECREASES ERYTHROPOIESIS IN RATS: IMPLICATION FOR POSSIBLE ZINC DEFICIENCY ANEMIA IN HUMANS.** Aki Konomi, and Katsuhiko Yokoi. Seitoku University Graduate School (Matsudo, Japan)

**P-5 3.P05 HIGH-DOSE ZINC TO TERMINATE ANGINA PECTORIS: A REVIEW AND HYPOTHESIS FOR ACTION BY ICAM INHIBITION.** George Eby<sup>1</sup>, and William Halcomb<sup>2</sup>. <sup>1</sup>George & Patsy Eby Foundation (Austin, TX, USA); <sup>2</sup>William W. Halcomb Clinic (Mesa, AR, USA)

**P-6 3.P06 LIPIDEMIC PROFILE AND HEAVY METAL BODY BURDEN IN HYPERTENSIVE PATIENTS.** Spyridoula Mila, Demetra Filiou, Alexandros Tselepis, Angelos Evangelou, and Vasiliki. Kalfakakou University (Ioannina, Greece)

#### Category 4: Diabetes Mellitus, Metabolic Syndrome X, and Obesity

*Chair:* Richard Anderson

**P-7 4.P01 THE ROLE OF LOW DOSES OF LEAD ON DEVELOPMENT OF DISLIPIDEMY: EXPERIMENTAL DATA.**

Kostiantyn Kozlov, Lilia Krasnokutskaya, Inna Lubyanova, Nataliya Dmytrukha, Tamara Korolenko, and Iryna Andrusyshyna. Institute for Occupational Health (Kiev, Ukraine)

**P-8 4.P02 IS PLASMA CHROMIUM CONCENTRATION A PREDICTOR FOR FAVOURABLE EFFECT OF CHROMIUM SUPPLEMENTATION?** Matjaz Vrtovec<sup>1</sup>, Alenka Briski<sup>1</sup>, Gaj Vidmar<sup>2</sup>, and Andreja Kocijancic<sup>3</sup>. <sup>1</sup>University Medical Centre



(Ljubljana, Slovenia); <sup>2</sup>Medical Faculty Ljubljana (Ljubljana, Slovenia); <sup>3</sup>University of Ljubljana (Ljubljana, Slovenia)

**P-9 4.P03 LONGITUDINAL HAIR-ZN PROFILES OF ELDERLY SUBJECTS WITH NORMAL GLUCOSE TOLERANCE AND TYPE II DIABETES MELLITUS.** Janez Štupar<sup>1</sup>, Franci Dolinšek<sup>2</sup>, and Matjaž Vrtovec<sup>3</sup>. <sup>1</sup>University of Nova Gorica (Nova Gorica, Slovenia); <sup>2</sup>Retired (Ljubljana, Slovenia); <sup>3</sup>University Medical Center (Ljubljana, Slovenia)

**P-10 4.P04 INVOLVEMENT OF MACRO AND TRACE ELEMENTS IN DYSREGULATORY MECHANISMS OF OBESITY AND TYPE II DIABETES PATHOGENESIS IN PRE- AND POSTMENOPAUSAL WOMEN.** Margarita Skalnaya<sup>1</sup>, Georgy Kryzhanovsky<sup>2</sup>, and Anatoly Skalny<sup>2</sup>. <sup>1</sup>ANO "Centre for Biotic Medicine" (Moscow, Russian Federation); <sup>2</sup>Institute of General Pathology and Pathophysiology RAMS (Moscow, Russian Federation)

**P-11 4.P05 DETERMINATION OF HEAVY METALS AND TRACE METALS IN GROUND WATER AND SOIL IN LYBIA BY FLAME AAS AND HEART AND DIABETICS DISEASES.** Tarik Nasser<sup>1</sup>, Ali Alagel<sup>2</sup>, Mohamed Emhemed<sup>2</sup>, and Ahmedf Alhaqngari<sup>2</sup>. <sup>1</sup>Almerqeb University (Tripoli, Lybia); <sup>2</sup>National Center of Pesticides (Tripoli, Lybia)

**P-12 4.P06 AGES AND COPPER IONS.** Andreea Iren Serban Capatina<sup>1</sup>, Marieta Costache<sup>2</sup>, and Anca Dinischiotu<sup>2</sup>. <sup>1</sup>University of Agricultural Science and Veterinary Medicine, Faculty of Veterinary Medicine (Bucharest, Romania); <sup>2</sup>University of Bucharest, Faculty of Biology, Molecular Biology Center (Bucharest, Romania)

#### Category 5: Disorders of Aging

*Chair: Mohamed Abdulla*

**P-13 5.P01 ELEMENTS IN HAIR OF POPULATION WITH DIFFERENT GRADE OF HYPOTHYROIDISM.** Tatjana Lalic<sup>1</sup>, and Ivana Djujic<sup>2</sup>. <sup>1</sup>"Balans Medika", Center for Balanced and High Quality Live (Belgrade, Serbia and Montenegro); <sup>2</sup>University of Belgrade, ICHTM-Department of Chemistry (Belgrade, Serbia and Montenegro)

**P-14 5.P02 THE CONSEQUENCES OF ALUMINIUM EXPOSURE ON RATS GENITAL ORGANS AND SEXUAL ACCESSORY GLAND HISTOARCHITECTURE: THREE GENERATION EXPERIMENT.** Alexandra Trif, Florin Muselin, and Diana Argherie. Faculty of Veterinary Medicine Timisoara (Timisoara, Romania)

**P-15 5.P03 AGE-RELATED ANTIOXIDANT DEFENSE WEAKENING IS ALTERED BY LOW SELENIUM INTAKES.** Irini Margaritis<sup>1</sup>, Isabelle Hininger-Favier<sup>2</sup>, Adrien Botta<sup>3</sup>, and Luc Farout<sup>3</sup>. <sup>1</sup>French Food Agency (Maisons-Alfort, France); <sup>2</sup>Université Grenoble I (Grenoble, France); <sup>3</sup>Université de Nice Sophia-Antipolis (Nice, France)

**P-16 5.P04 THE CONSEQUENCES OF FEMALE RATS EXPOSURE TO LEAD ACETATE ON SOME SEXUAL HORMONES.** Eugenia Dumitrescu, Alexandra Trif, and Florin Muselin. Faculty of Veterinary Medicine Timisoara (Timisoara, Romania)

**P-17 5.P05 THE CONSEQUENCES OF FEMALE RATS EXPOSURE TO ALUMINUM SULPHATE ON SOME SEXUAL HORMONES.** Alexandra Trif, Eugenia Dumitrescu, and Florin Muselin. Faculty of Veterinary Medicine Timisoara (Timisoara, Romania)

**P-18 5.P06 THE CONSEQUENCES OF LEAD EXPOSURE ON RATS GENITAL ORGANS AND SEXUAL ACCESSORY GLANDS HISTOARCHITECTURE: THREE GENERATION EXPERIMENT.** Florin Muselin, Alexandra Trif, and Diana Argherie. Faculty of Veterinary Medicine Timisoara (Timisoara, Romania)

#### Category 6: Fetal Development and Pediatric Disorders

*Chair: Lars Barregård*

**P-19 6.P01 LEVELS OF TOXIC HEAVY METALS AND ESSENTIAL TRACE ELEMENTS IN MATERNAL BLOOD, CORD BLOOD, AND PLACENTAL TISSUES IN JAPANESE PREGNANT WOMEN.** Satomi Kameo<sup>1</sup>, Kunihiko Nakai<sup>2</sup>, Miyuki Shimada<sup>2</sup>, Keita Suzuki<sup>2</sup>, Kozue Sakurai<sup>2</sup>, Naoyuki Kurokawa<sup>2</sup>, and Hiroshi Satoh<sup>2</sup>. <sup>1</sup>Tohoku University Graduate School of Medicine (Sendai, Japan); <sup>2</sup>Environmental Health Sciences, Tohoku University Graduate School of Medicine (Sendai, Japan)

**P-20 6.P02 IMPAIRMENT OF IODINE AND THYROID HORMONES METABOLISM IN VERY PREMATURE INFANTS.** Stanislav Pavelka. Faculty of Science, Masaryk University, Brno, and Institute of Physiology, Czech Acad. Sci., (Prague 4, Czech Republic)

**P-21 6.P03 CADMIUM EXPOSURE AND TRACE ELEMENTS IN BREAST MILK.** Maria Kippler<sup>1</sup>, Bo Lönnerdal<sup>2</sup>, Walter Goessler<sup>3</sup>, Eva-Charlotte Ekström<sup>4</sup>, Lars-Åke Persson<sup>4</sup>, Shams El Arifeen<sup>5</sup>, and Marie Vahter<sup>6</sup>. <sup>1</sup>Karolinska institute (Stockholm, Sweden); <sup>2</sup>Nutritional and Internal Medicine, University of California (Davis, USA); <sup>3</sup>Institut für Chemie – Analytische Chemie, Karl-Franzens-Universität (Graz, Austria); <sup>4</sup>International Maternal and Child Health, Uppsala University (Uppsala, Sweden); <sup>5</sup>International Centre for Diarrhoeal Disease Research (ICDDR,B) (Dhaka, Bangladesh); <sup>6</sup>Institute of Environmental Medicine, Karolinska Institute (Stockholm, Sweden)

**P-22 6.P04 COPPER AND ZINC STATUS IN THE BREAST MILK OF MOTHERS WITH WILSON'S DISEASE.** Katsuaki Shiga<sup>1</sup>, Fumiya Kaga<sup>1</sup>, Chie Fujisawa<sup>1</sup>, Yanhong Gu<sup>1</sup>, Kenji Kobayashi<sup>2</sup>, Hiroshi Koyama<sup>2</sup>, and Hiroko Kodama<sup>1</sup>. <sup>1</sup>Teikyo (Tokyo, Japan); <sup>2</sup>Gunma (Gunma, Japan)]

**P-23 6.P05 ANALYSIS OF SOME IMPORTANT TRACE ELEMENTS IN THE PLACENTAS OF HEALTHY AND PREECLAMPTIC TURKISH WOMEN IN THE PROVINCE OF KAYSERI-TURKEY.** Nalan Ozdemir, Zeliha Leblebici, Berkay Saraymen, Burak Saraymen, Recep Saraymen, and Ahmet Acer. Erciyes University (Kayseri, Turkey)

**P-24 6.P06 STUDENT TRAVEL COMPETITION AWARDEE: EFFECT OF ONE YEAR OF IRON/ZINC FORTIFICATION ON LEAD LEVELS AMONG CHILDREN AGED 1-4 YEARS.** Usha Dhingra<sup>1</sup>, Saikat Deb<sup>1</sup>, Venugopal P Menon<sup>2</sup>, Robert E Black<sup>1</sup>, Pratibha Dhingra<sup>2</sup>, Archana Sarkar<sup>2</sup>, and Sunil Sazawal<sup>1</sup>. <sup>1</sup>Johns Hopkins University (Baltimore, USA); <sup>2</sup>Center for Micronutrient Research, Annamalai University (New Delhi, India); <sup>3</sup>Center for micronutrient Research, Annamalai University (New Delhi, India)

**P-25 6.P07 NUTRITIONAL VALUE OF PROCESSED VS. TRADITIONAL SNACKS, CONSUMED BY CHILDREN, IN RELATION TO THEIR ZN AND CU CONTENT.** Demetra Filiou, Spyridoula Mila, Panagiotis Gorezis, Vasilios Koutras, Angelos Evangelou, and Vasiliki. Kalfakakou University (Ioannina, Greece)

**P-26 6.P08 EXPOSURE ASSESSMENT OF METHYLMERCURY IN THE JAPANESE PREGNANT WOMEN.** Hiroshi Satoh<sup>1</sup>, Miyuki Shimada<sup>2</sup>, Takashi Ohba<sup>2</sup>, Satomi Kameo<sup>2</sup>, Keita Suzuki<sup>3</sup>, Kozue Sakurai<sup>2</sup>, Naoyuki Kurokawa<sup>2</sup>, Katsuyuki Murata<sup>4</sup>, Mineshi Sakamoto<sup>5</sup>, and Kunihiko Nakai<sup>2</sup>. <sup>1</sup>Tohoku University Graduate School of Medicine (Sendai, Japan); <sup>2</sup>Environmental Health Sciences, Tohoku University Graduate School of Medicine (Sendai, Japan); <sup>3</sup>Human Development and Disabilities, Tohoku University Graduate School of Education (Sendai, Japan); <sup>4</sup>Environmental Health Sciences, Akita University School of Medicine (Akita, Japan); <sup>5</sup>Epidemiology, National Institute for Minamata Disease (Minamata, Japan)

**P-27 6.P09 IODINE DEFICIENCY DISORDERS IN MARRAKECH, MOROCCO.** Azeddine SEDKI<sup>1</sup>, Farida Zaida<sup>2</sup>, Nadra Lekouch<sup>2</sup>, Dominique Bougle<sup>2</sup>, and Pierre Ahran<sup>2</sup>. <sup>1</sup>Satellite Centre of Trace Element - Institute for UNESCO (Marrakech, Morocco); <sup>2</sup>Satellite Centre of Trace Element - Institute for UNESCO: Morocco, Dept of Biology, Faculty of Sciences (Marrakech, Morocco); <sup>3</sup>Digestive and Nutritional Physiology Laboratory, CHU (Caen, France)

#### **Category 7: Infectious Diseases and Immune Disorders**

**Chair: Manuel Ruz**

**P-28 7.P01 TISSUE UPTAKE OF MERCURY IS CHANGED DURING THE COURSE OF A COMMON VIRAL INFECTION IN MICE.** Peter Frisk<sup>1</sup>, Ylva Molin<sup>2</sup>, and Nils-Gunnar Ilbäck<sup>3</sup>. <sup>1</sup>Research in Metal Biology (Uppsala, Sweden); <sup>2</sup>Department of Medical Sciences, Infectious Diseases, Uppsala University Hospital (Uppsala, Sweden); <sup>3</sup>Department of Medical Sciences, Infectious Diseases, Uppsala University Hospital and Toxicology Division, National Food Administration, Uppsala (Uppsala, Sweden)

**P-29 7.P02 ZINC TREATMENT PREVENTS DYSMENORRHEA.** George Eby George & Patsy Eby Foundation (Austin, USA)

**P-30 7.P03 EVALUATION OF THE OXIDANT/ANTIOXIDANT STATUS IN PATIENTS WITH BEHÇET'S DISEASE.** Olfa Harzallah<sup>1</sup>, Tarek Baati<sup>2</sup>, Sylvia Mahjoub<sup>3</sup>, and Abdelhamid Kerkeni<sup>2</sup>. <sup>1</sup>Internal medicine department; Fattouma Bourguiba hospital (Monastir, Tunisia); <sup>2</sup>Biophysics laboratory; Medicine Faculty (Monastir, Tunisia)

**P-31 7.P04 ANEMIA, IRON DEFICIENCY, AND PARASITISM IN CHILDREN FROM A RURAL COMMUNITY OF VENEZUELA.** Zully Benzo<sup>1</sup>, Jham Papale<sup>2</sup>, Manuelita Quintal<sup>1</sup>, Yelitz Berne<sup>2</sup>, Mario Torres<sup>2</sup>, Ester Gimenez<sup>2</sup>, Manuel Castro<sup>2</sup>, and Zuly Briceño<sup>3</sup>. <sup>1</sup>IVIC (Caracas, Venezuela); <sup>2</sup>Decanato de Medicina. Laboratorio de Bioquímica Nutricional. Universidad Centrocidental Lisandro Alvarado (Barquisimeto, Venezuela); <sup>3</sup>Decanato de Ciencia y Tecnología. Laboratorio de Bioquímica Nutricional. Universidad Lisandro Alvarado. (Barquisimeto, Venezuela)

**P-32 7.P05 ZINC AND COPPER IN RED BLOOD CELLS, LIPID PEROXIDATION, NUTRITIONAL STATUS, AND INFLAMMATORY RESPONSE IN THE PROGRESSION OF CHRONIC HEPATITIS C VIRUS INFECTION.** Emilio Gonzez-Reimers<sup>1</sup>, Ana Castellano-Higuera<sup>1</sup>, Remedios Aleman-Valls<sup>1</sup>, Pedro Abreu-Gonzez<sup>2</sup>, Luis Galindo-Martın<sup>3</sup>, Candelaria Martın-Gonzez<sup>1</sup>, Francisco Santolaria-Fernandez<sup>1</sup>, and Juan Luis Gomez-Sirvent<sup>1</sup>. <sup>1</sup>Hospital Universitario (La laguna/Tenerife, Spain); <sup>2</sup>de Medicina (La Lagune, Spain); <sup>3</sup>Facultad de Quimica (La Lagune, Spain)

**P-33 7.P06 INFLUENCE OF TOXIC AND ESSENTIAL METALS ON MARKERS OF ATOPY AND VENTILATORY FUNCTION IN MEN AND WOMEN.** Alica Pizent, Jelena Macan, Jasna Jurasovic, Veda Marija Varnai, and Bozica Kanceljak Macan. Institute for Medical Research and Occupational Health (Zagreb, Croatia)

**P-34 7.P07 CAN LEG DISORDERS OF TURKEYS BE PREVENTED BY SOME EFFECTIVE INGREDIENTS CONTAINING THE FEED ADDITIVE IMMUNOVET-HBMTM? .** Nagy Gyula, Kosa Emma, and Jakab Laszlo. Szent Istvan University, Faculty of Veterinary Science (Budapest, Hungary)

**P-35 7.P08 INFLUENCE OF SELENIUM AND EIMERIA TENELLA INFECTION ON ANTIOXIDANT STATUS IN CHICKS:**

**STATUS AND RESISTANCE AGAINST INFECTIONS.** Sophie Ermidou-Pollet<sup>1</sup>, Margarita Gabrashanska<sup>2</sup>, V. Koinarski<sup>3</sup>, St. Denev<sup>4</sup>, Serge Pollet<sup>5</sup>, and M. Anisimova<sup>2</sup>. <sup>1</sup>University of Athens (Nea-Makri, Greece); <sup>2</sup>Institute of Experimental Pathology and Parasitology, Bulgarian Academy of Sciences (Sofia, Bulgaria); <sup>3</sup>Faculty of Veterinary Medicine, Trakia University (Stara Zagora, Bulgaria); <sup>4</sup>Faculty of Agriculture, Trakia University (Stara Zagora, Bulgaria); <sup>5</sup>HTES (Athens, Greece)

#### Category 8: Molecular Nutrition for the Clinician

*Chair: James Kang*

**P-36 8.P01 THE EFFECT OF SELENIUM SUPPLEMENTATION TO HEMODIALYSIS PATIENTS ON PLASMA GLUTATHIONE PEROXIDASE (GSH-PX) ACTIVITY AND GSH-PX PROTEIN LEVEL.** Bronislaw Zachara<sup>1</sup>, Jolanta Gromadzinska<sup>1</sup>, Zbigniew Zbrog<sup>2</sup>, Rafal Swiecz<sup>2</sup>, Ewa Jablonska<sup>1</sup>, Ewa Twardowska<sup>1</sup>, and Wojciech Wasowicz<sup>1</sup>. <sup>1</sup>Institute of Occupational Medicine (Lodz, Poland); <sup>2</sup>B. Braun Avitum Dialysis Center (Lodz, Poland)

**P-37 8.P02 MOLECULAR DIAGNOSIS FOR ATYPICAL PATIENTS AND CARRIERS WITH WILSON DISEASE.** Junko Fujiwara, Norikazu Shimizu, Horomichi Hemmi, and Tsugutoshi Aoki. Toho University (Tokyo, Japan)

**P-38 8.P03 ROLE OF ZN IN ROPIVACAINE AND NEUTRAL ENDOPEPTIDASE: TOXIC EFFECTS ON HUMAN CERATINOCYTE CELLS.** Evangelos Kontargiris, Evangelos Kolettas, Athina Vadalouca, and Vasiliki Kalfakakou. University (Ioannina, Greece)

#### Category 10: Osteoporosis and Other Bone Disorders

*Chair: Scott Smith*

**P-39 10.P01 THE EFFECTS OF LOW-LEVEL CADMIUM EXPOSURE ON BONE DENSITY.** Malgorzata Trzcinka-Ochocka, Marek Jakubowski, and Beata Janasik. Nofer Institute of Occupational Medicine (Lodz, Poland)

**P-40 10.P02 EFFECTS OF DIETARY COMPONENTS ON CADMIUM-INDUCED BONE LOSS IN AN OVARECTOMIZED RAT MODEL OF OSTEOPOROSIS.** Barbara Stoecker<sup>1</sup>, Amani Soliman<sup>1</sup>, Do You Soung<sup>2</sup>, Latha Devareddy<sup>3</sup>, and Bahram Arjmandi<sup>3</sup>. <sup>1</sup>Oklahoma State University (Stillwater, USA); <sup>2</sup>University of Rochester (Rochester, NY, USA); <sup>3</sup>Florida State University (Tallahassee, FL, USA).

**P-41 8.P04 STRONG INDUCTION OF ARACHIDONATE 12-LIPOXYGENASE (ALOX15) IN THE INTESTINE OF IRON-DEFICIENT RATS RESULTS IN THE PRODUCTION OF BIOLOGICALLY ACTIVE LIPID MEDIATORS.** James Collins, Zihua Hu, Michael Garrick, Laura Garrick, and Richard Browne. University at Buffalo, the State University of New York (Buffalo, USA)

**P-42 Open.**

**P-43 10.P05 DOES CALCIUM SUPPLEMENTATION DURING THE SUCKLING PERIOD AFFECT BONE MINERAL DENSITY AND BONE ZINC LATER IN ADULT RATS?.** Veda Marija Varnai<sup>1</sup>, Martina Piasek<sup>1</sup>, and Marijana Matek Saric<sup>2</sup>. <sup>1</sup>Institute for Medical Research and Occupational Health (Zagreb, Croatia); <sup>2</sup>Institute for Public Health Zadar (Zadar, Croatia)

**P-44 10.P06 THE FEASIBLE USE OF TEETH AS THE SITE FOR THE IN VIVO QUANTIFICATION OF STRONTIUM BY X-RAY FLUORESCENCE SPECTROMETRY.** Eric Da Silva<sup>1</sup>, Ana Pejovic-Milic<sup>2</sup>, and Darrick V. Heyd<sup>3</sup>. <sup>1</sup>Ryerson University (Toronto, Canada); <sup>2</sup>Ryerson University, Department of Physics (Toronto, Canada); <sup>3</sup>Ryerson University, Department of Chemistry & Biology (Toronto, Canada)

**P-45 10.P07 TRACE ELEMENT CONCENTRATIONS IN HUMAN NAILS USING ATOMIC ABSORPTION SPECTROMETRY.** Fathi El-Amri<sup>1</sup>, Ramadan damja<sup>2</sup>, and Yousf Beshaban<sup>2</sup>. <sup>1</sup>United Arab Emirates University (Al-Ain, United Arab Emirates); <sup>2</sup>al-Fateh University, Tripoli, Libya (Tripoli, Libya)

**P-46 10.P08 ELIMINATION OF ARTHRITIS PAIN AND INFLAMMATION FOR OVER 2 YEARS WITH A SINGLE 90 MIN, TOPICAL 14% GALLIUM NITRATE TREATMENT: CASE REPORTS AND REVIEW OF ACTIONS OF GALLIUM III.** George Eby. George & Patsy Eby Foundation (Austin, USA)

**P-47 10.P09 THE ASSESSMENT OF THE EFFECT OF CALCIUM, MAGNESIUM, AND VIT D SUPPLEMENTATION BY THE HAIR MULTIELEMENT PROFILE FOLLOW UP.** Juraj Prejac, Nikola Ivicic, and Berislav Momcilovic. Institute for Medical Research and Occupational Health (IMI) (Zagreb, Croatia)

**14:30-17:30 Five Concurrent Sessions (Symposia C, D, and E; Minisymposium 4 and 5)**

## Symposium C--MINOS

### **Environmental Stress and Mineral Homeostasis**

*Chair:* **James McClung**

*Purpose of Session:* Mineral homeostasis is vulnerable to a variety of environmental stressors including heat, altitude, and weightlessness. The symposium summarizes current understanding of the effect environmental stress on human physiology. This includes discussion of the effects of physical training on mineral loss (with emphasis on perturbations of iron and zinc metabolism); hypobaric pressure on mineral dependent enzymes; and weightlessness on bone demineralization and calcium metabolism.

14:30 "Overview of human physiological responses to environmental extremes", **Andrew Young**

15:00 "Iron Homeostasis in Environmental Extremes", **James McClung**

15:30 "Mineral homeostasis at high altitude: focus on antioxidants", **Andrew Subudhi**

16:00 Delegate Coffee Break (OLYMPUS)

16:30 "Mineral homeostasis during spaceflight: bone demineralization", **Scott Smith**

17:00 "Mineral losses during extreme environmental conditions", **Henry C. Lukaski**

## Symposium D--ATHENA-ARTEMIS

### **Molecular mechanisms of metal induced disease**

*Chair:* **Max Costa**

*Co-Chair:* **Michael Aschner**

*Purpose of Session:* Environmental exposure to excessive concentrations of trace minerals lead to significant morbidity and mortality. However, there is little understanding of the molecular mechanisms responsible for metal-induced disease. This symposium summarizes progress made in understanding some of those molecular mechanisms. It will emphasize new findings that the stabilization of HIF-1 alpha and histone methylation contribute to nickel ion carcinogenicity. Also, that any change in dietary iron levels exacerbates brain manganese accumulation and alters normal brain iron distribution in multiple discrete brain regions.

14:30 "Changes In Dietary Iron Levels Affect Brain Manganese accumulation and distribution", **Michael Aschner**

15:00 "Molecular Carcinogenicity of Nickel Ions targets HIF-1 Prolyl Hydroxylases and Histone-3 Lysine 9 Demethylases", **Max Costa**

15:30 "Reprogramming of histone marks by chromium", **Michael Schneckengerger, Li Peng, and Alvaro Puga**

16:00 Delegate Coffee Break (OLYMPUS)

16:30 "Arsenic cardiomyopathy and molecular mechanism", **Y. James Kang**

## Symposium E--EUROPA-DANAE

### **Advances in Analytical Detection of Trace Elements in Biological Tissues**

*Chair:* **Sophie Ermidou-Pollet**

*Co-Chair:* **Edouard Jallot**

*Co-Chair:* **Maria Luisa de Carvalho**

*Co-Chair:* **Enrico Sabbioni**

*Purpose of Session:* Progress in trace element research depends very much on the use of appropriate methodologies and their improvement. The progressive availability of new physical methods have very much increased the possibilities for quantitative and local (including subcellular) studies of chemical elements in biological systems. The recent improvements in the methods of detection and their application in nutrition and medicine, as well as the problems associated with the determination of trace elements will be presented during this session by "high level" scientist speakers having great experiences in these fields.

14:30 "Ion and electron beams methods for biological trace element characterization at bioceramics/cells interface", **Edouard Jallot**

15:00 "X-ray fluorescence technique on trace element determination in biological samples", **Maria Luisa de Carvalho**

15:30 "Alternative testing methods in food nanoparticles toxicology research for a safe food nanotechnology development", **Enrico Sabbioni**

16:00 Delegate Coffee Break (OLYMPUS)

Minisymposium 4: Category 12--Trace Element Detection and Quantification

16:30 12.S01 **SEPARATION OF PROTEINS IN CEREBROSPINAL FLUID BY SIZE EXCLUSION HPLC AND DETERMINATION OF TRACE ELEMENTS BY HR-ICP-MS.** Kristin Gellein<sup>1</sup>, Per M Roos<sup>2</sup>, Lars Evje<sup>3</sup>, Olof Vesterberg<sup>4</sup>, Trond Peder Flaten<sup>5</sup>, Monica Nordberg<sup>6</sup>, and Tore Syversen<sup>3</sup>. <sup>1</sup>Norwegian University of Science and Technology (Trondheim, Norway); <sup>2</sup>Department of Neurology, Ullevaal University Hospital (Oslo, Norway); <sup>3</sup>Department of Neuroscience, Norwegian University of Science and Technology (Trondheim, Norway); <sup>4</sup>Faculty of Natural Sciences, Uppsala University (Uppsala, Sweden); <sup>5</sup>Department of Chemistry, Norwegian University of Science and Technology (Trondheim, Norway); <sup>6</sup>Institute of Environmental Medicine, Karolinska Institutet (Stockholm, Sweden)

16:45 12.S03 **VERY ACCURATE (DEFINITIVE) METHODS BY RNAA. THE IDEA AND RECENT ACHIEVEMENTS.** Rajmund S. Dybczynski, Ewelina Chajduk, and Halina Polkowska-Motrenko. Institute of Nuclear Chemistry and Technology (Warszawa, Poland)

17:00 12.S04 **ION SPECTROMETRY (SIMS) AND ELECTRON MICROSCOPY (TEM) CORRELATIVE IMAGING IN THE QUEST OF COMPREHENSIVE TRACE ELEMENT LOCALIZATION AT SUBCELLULAR LEVEL, IN NORMAL AND PATHOLOGICAL KERATINOCYTES.** Eliane Larras-Regard, J éril Degrouard, and Danielle Jaillard. Université Paris-Sud (ORSAY, France)

17:15 12.S05 **RECENT DEVELOPMENTS IN ICP-MS APPLIED TO STUDIES IN NUTRITION AND HEALTH.** Steven Durrant<sup>1</sup>, and Neil Ward<sup>2</sup>. <sup>1</sup>Universidade Estadual Paulista (UNESP) (Sorocaba, SP, Brazil); <sup>2</sup>University of Surrey (Guildford, United Kingdom)

17:30 12.S06 **ELEMENTAL ANALYSIS OF BIOLOGICAL MATERIALS – STATE OF THE ART** Douglas Baxter, and Ilia Rodushkin; ALS Scandinavia (Luleå Sweden)

Minisymposium 5--LEDA

Chair: **Barbara Stoecker**

Co-Chair: **Vadim Ermakov**

Category 4: Diabetes Mellitus, Metabolic Syndrome X, and Obesity

14:30 4.S01 **FEMALE OFFSPRING OF RAT DAMS FED LOW BORON DIETS DURING PREGNANCY AND LACTATION EXHIBIT SIGNS OF THE METABOLIC SYNDROME DURING EARLY ADULTHOOD: INCREASED BODY WEIGHT, AND SERUM TRIGLYCERIDES AND TOTAL CHOLESTEROL CONCENTRATIONS.** Curtiss Hunt, and Joseph Idso. USDA/ARS/GFHNRC (Grand Forks, USA)

14:45 4.S02 **SAFETY, ABSORPTION, AND ANTIOXIDANT EFFECTS OF CHROMIUM HISTIDINE.** Richard A. Anderson<sup>1</sup>, Noella Bryden<sup>1</sup>, Marilyn Polansky<sup>1</sup>, Isabelle Hininger-Favier<sup>2</sup>, Rachida Benaraba<sup>2</sup>, and Anne Roussel<sup>2</sup>. <sup>1</sup>Beltsville Human Nutrition Research Center (Beltsville, USA); <sup>2</sup>LBFA, Université Joseph Fourier, (Grenoble I, France)

15:00 4.S03 **ZINC AND IRON ABSORPTION AND NUTRITIONAL STATUS AFTER GASTRIC BYPASS IN MORBID OBESE PATIENTS.** Manuel Ruz<sup>1</sup>, Fernando Carrasco<sup>1</sup>, Pamela Rojas<sup>1</sup>, Jorge Inostroza<sup>1</sup>, Juana Codoceo<sup>1</sup>, Attila Csendes<sup>1</sup>, Karín Papapietro<sup>1</sup>, Fernando Pizarro<sup>1</sup>, Manuel Olivares<sup>1</sup>, Nancy Krebs<sup>2</sup>, Jamie Westcott<sup>2</sup>, and Michael Hambidge<sup>2</sup>. <sup>1</sup>University of Chile (Santiago, Chile); <sup>2</sup>UCHSC (Denver, CO, USA)

Category 6: Fetal Development and Pediatric Disorders

15:15 6.S01 **STUDENT TRAVEL COMPETITION AWARDEE: INCREASED CADMIUM ABSORPTION IN IRON SUPPLEMENTED SUCKLING PIGLETS.** Helena Öhrvik<sup>1</sup>, Agneta Oskarsson<sup>1</sup>, Thomas Lundh<sup>2</sup>, Staffan Skerfving<sup>2</sup>, and Jonas Tallkvist<sup>1</sup>. <sup>1</sup>Swedish University of Agricultural Sciences (Uppsala, Sweden); <sup>2</sup>Lund University Hospital (Lund, Sweden)

15:30 6.S02 **RED-CELL TRACE MINERALS IN CHILDREN WITH AUTISM.** Joan Jory<sup>1</sup>, and Woody McGinnis<sup>2</sup> <sup>1</sup>Joan Jory, (Guelph, Canada); <sup>2</sup>Woody McGinnis. (Ashland, Oregon, USA)

15:45 6.S03 **CONSUMPTION OF MILK FORTIFIED WITH IRON, ZINC AND TRACE AMOUNTS OF COPPER FOR 1 YEAR: EFFECTS ON COPPER STATUS AMONG PRE-SCHOOL CHILDREN.** Girish Hiremath<sup>1</sup>, Sunil Sazawal<sup>1</sup>, Usha Dhingra<sup>1</sup>, Saikat Deb<sup>1</sup>, Pratibha Dhingra<sup>2</sup>, Archana Sarkar<sup>2</sup>, Venugopal P Menon<sup>2</sup>, and Robert E Black<sup>1</sup>. <sup>1</sup>Johns Hopkins University (Baltimore, USA); <sup>2</sup>Center for Micronutrient Research, Annamalai University (New Delhi, India)

16:00 Delegate Coffee Break (OLYMPUS)

**Category 10: Osteoporosis and Other Bone Disorders**

16:30 10.S01 **RECOVERY OF BONE STATUS AFTER ABANDONING INGESTING CADMIUM-RICE FOR 10 YEARS.** Chen Xiao, Zhu Guoying, Jin Taiyi, Lei Lijian, and Liang Yihuai. Fudan University (Shanghai, China)

16:45 10.S02 **SE DEFICIENCY AND MANIFESTATION OF UROV DISEASE IN EAST SIBERIA.** Vadim Ermakov V.I. Vernadsky Institute of Geochemistry and Analytical Chemistry (Moscow, Russian Federation)

17:00 10.S03 **THE BA/SR RATIO, CARIOUS LESIONS, AND DENTAL CALCULUS AMONG THE POPULATION BURIED IN LA CONCEPCIÓN (TENERIFE, CANARY ISLANDS).** Matilde Arnay-de-la-Rosa<sup>1</sup>, Emilio González-Reimers<sup>2</sup>, Alejandro Gázquez-Mendoza<sup>3</sup>, and Luis Galindo-Martín<sup>4</sup>. <sup>1</sup>Dpto. de Prehistoria, Antropología e Historia Antigua (La Laguna/Tenerife, Spain); <sup>2</sup>Hospital Universitario (La Laguna/Tenerife, Spain); <sup>3</sup>Facultad de Geografía e Historia (La Laguna/Tenerife, Spain); <sup>4</sup>Facultad de Química (La Laguna/Tenerife, Spain)

**Minisymposium 6--APHRODITE**

Chair: **Jan Aaseth**

Co-Chair: **Magdalena Araya**

**Category 8: Molecular Nutrition for the Clinician**

14:30 8.S01 **MUTATION ANALYSIS IN FRENCH WILSON DISEASE PATIENTS: IDENTIFICATION OF PREVALENT SUBSTITUTION AND ELEVEN NOVEL MUTATIONS IN THE ATP7B GENE.** Muriel Bost<sup>1,2,3</sup>, Guénaelle Piguet-Lacroix<sup>2,3</sup>, Martine Pelosse<sup>3</sup>, Rodica Gincul<sup>3</sup>, Emmanuel Broussolle<sup>3,4</sup>, Jing Xie-Brustolin<sup>3,4</sup>, Jérôme Dumortier<sup>3,5</sup>, Alain Lachaux<sup>3,6</sup>. <sup>1</sup>Trace Element - Institute for UNESCO (Lyon, France); <sup>2</sup>Neurogénétique moléculaire, Centre de Biologie, Groupe Hospitalier Est (Lyon, France); <sup>3</sup>Centre de Référence Maladie de Wilson, Département de Pédiatrie, Hôpital Edouard-Herriot (Lyon, France); <sup>4</sup>Service de Neurologie, Hôpital Neurologique (Lyon, France); <sup>5</sup>Fédération des spécialités digestives, Hôpital Edouard Herriot (Lyon, France); <sup>6</sup>Unité d'Hépatogastroentérologie infantile, Département de Pédiatrie, Hôpital Edouard Herriot (Lyon, France)

14:45 8.S02 **IDENTIFICATION OF ATP7A MUTATIONS ASSOCIATED WITH MENKES DISEASE.** Chie Fujisawa<sup>1</sup>, Hiroko Kodama<sup>1</sup>, Katsuaki Shiga<sup>1</sup>, YanHong Gu<sup>2</sup>, and Fumiya Kaga<sup>1</sup>. <sup>1</sup>Teikyo University School of Medicine (Tokyo, Japan); <sup>2</sup>National Center for Child Health and Development (Tokyo, Japan)

15:00 8.S03 **IRON AND COPPER TOXICITY IN HEREDITARY DISEASES.** Jan Aaseth<sup>1</sup>, Ole Andersen<sup>2</sup>, Trond Peder Flaten<sup>3</sup>, and Kristin Gellein<sup>3</sup>. <sup>1</sup>Sykehuset Innlandet (Kongsvinger, Norway); <sup>2</sup>Roskilde University (Roskilde, Denmark); <sup>3</sup>Norwegian University of Science and Technology (Trondheim, Norway)

15:15 8.S04 **DIETARY ORIGIN OF SIMULTANEOUS DEFICIENCY OF ZINC AND IRON IN HUMANS.** Katsuhiko Yokoi<sup>1</sup>, Harold H. Sandstead<sup>2</sup>, Norman G. Egger<sup>3</sup>, Nancy W. Alcock<sup>2</sup>, V. M. Sadagopa Ramanujam<sup>2</sup>, Hari H. Dayal<sup>2</sup>, and James G. Penland<sup>4</sup>. <sup>1</sup>Seitoku University Graduate School (Matsudo, Japan); <sup>2</sup>PM&CH, University of Texas Medical Branch (Galveston, TX, USA); <sup>3</sup>General Internal Medicine, Mayo Clinic (Rochester, MN, USA); <sup>4</sup>Grand Forks Human Nutrition Research Center (Grand Forks, ND, USA)

15:30 8.S05 **CHRONIC COPPER TOXICITY IN A NON-HUMAN PRIMATE MODEL: PRELIMINARY RESULTS.** Magdalena Araya, Hector Nuñez, Miguel Arredondo, Fernando Pizarro, Marco Mendez, and Manuel Olivares. INTA, University of Chile (Santiago, Chile)

15:45 8.S06 **MECHANISM OF SELENOCYSTEINE LYASE: STRICT DISCRIMINATION BETWEEN SELENIUM AND SULFUR.** Nobuyoshi Esaki, Hisaaki Mihara, and Suguru Kurokawa. Kyoto University (Uji, Japan)

16:00 Delegate Coffee Break (OLYMPUS)

16:30 8.S07 **THE CELLULAR FUNCTION OF SELENOCYSTEINE LYASE IN SELENOPROTEIN SYNTHESIS.** Hisaaki Mihara, Suguru Kurokawa, and Nobuyoshi Esaki. Kyoto University (Uji, Japan)

16:45 8.S08 **STRATEGY OF MOLECULAR DIAGNOSIS FOR WILSON DISEASE IN JAPAN.** Atsuko Watanabe, Norikazu Shimizu, Hiromichi Hemmi, and Tsugutoshi Aoki. Toho University (Tokyo, Japan)

17:00 8.S09 **ROLE OF ZINC TRANSPORTERS IN CADMIUM TRANSPORT IN MAMMALIAN CELLS.** Seiichiro Himeno, and Hitomi Fujishiro. Tokushima Bunri University (Tokushima, Japan)

17:15 8.S10 **MOLECULAR REGULATION OF THE MENKES COPPER ATPASE (ATP7A) AND DIVALENT METAL TRANSPORTER 1 (DMT1) BY IRON IN RAT DUODENUM AND IEC-6 CELLS.** James Collins. University at Buffalo, the State University of New York (Buffalo, USA)

17:30-20:30 LEDA

**MEETING OF UNESCO SATELLITE CENTRE MEMBERS**

Chair: **Mohamed Abdulla**

Trace Element - Institute for UNESCO

Supported by UNESCO

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**THURSDAY MORNING, October 25**

**7:30 Foyer**

Registration

**7:30 OLYMPUS**

Speaker Ready Room

**8:00 OLYMPUS**

Thursday posters open. Presentation time: 13:30-14:30

**8:00 OLYMPUS)**

Commercial Exhibits

**9:00-12:00 MINOS**

Plenary Session #4: **Health Consequences of Trace Element Deficiencies**

Chair: **Sophie Ermidou-Pollet**

Co-Chair: **Ivana Djujic**

Co-Chair: **Manfred Anke**

Co-Chair: **Maria Kapsokefalou**

*Purpose of Session:* Deficiencies of trace elements have profound effects on the development, health and well being of humans. They may affect human reproduction, the progression of pregnancy and the development of newborns and young children, a very important problem, especially in developing countries. Diagnosis of deficiency and the monitoring of individuals receiving treatment require the knowledge of both the trace element status of these individuals prior treatment and, in case of deficiency, the trace element requirements needed for restoring an adequate trace element status. The invited speakers are internationally recognized experts or clinicians. Their knowledge, experiences, and qualifications will give to the participants the opportunity to learn about the state-of-art developments in the field of trace element nutrition and human development, both physical and economic.

9:00 "Trace element nutrition: a neglected health issue in developing countries", **Mohamed Abdulla**

9:30 "Studies on the placental and mammary gland transfer of trace elements: impact of possible trace element deficiencies in infancy", **Erich Rossipal**

10:00 "Trace element deficiency treatment: much more than trace element supplementation", **Ivana Djujic**

10:30 Delegate Coffee Break (OLYMPUS)

11:00 "Predicting relative concentrations of bioavailable iron using in vitro approaches", **Maria Kapsokefalou**

11:30 "Iodine in the food chain of animals and man: intake, balance and requirement", **Manfred Anke**

**12:00**

Delegate Lunch (on your own)





## 12:00 PENTE

ISTERH Officers and Councilors Meeting 2

*Officers:* Curtiss Hunt (President), Monica Nordberg (Vice-President), Hiroko Kodama (Secretary), Harold Sandstead (Immediate Past-President). *Councilors:* Jan Aaseth (NORWAY), Mohamed Abdulla (SWEDEN), Muriel Bost (FRANCE), George Brewer (USA) Ayhan Cavdar (TURKEY), Jeanne Freeland-Graves (USA), Rosalind Gibson (New Zealand), Forrest Nielsen (USA), Anne Roussel (FRANCE), Swapan Kumar Roy (BANGLADESH), Manuel Ruz (CHILE), Hiram Sakurai (JAPAN), Songsak Srianujata (THAILAND), Yoji Takagi (JAPAN), Neil Ward (UNITED KINGDOM), Leslie Woodhouse (USA)

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## THURSDAY AFTERNOON, October 25

13:30-14:30 OLYMPUS

### POSTER SESSION 3

#### Category 9: Neurological Diseases & Neuropsychological Impairment

*Chair:* James Camakaris

*Co-Chair:* Rosanna Squitti

**P-1 9.P01 EFFECT OF VALPROIC ACID TREATMENT ON SERUM CLINICAL AND BLOOD HEMATOLOGICAL VALUES IN EPILEPTIC SUBJECT SUPPLEMENTED WITH SELENIUM AND ANTIOXIDANT COCKTAILS.** Tuomas Westermarck<sup>1</sup>, Elzbieta Plonka-Poltorak<sup>2</sup> and Faik Atroshi<sup>3</sup>. <sup>1</sup>Rinne Koti Research Center (Espoo, Finland); <sup>2</sup>Provincial Hospital (Rzeszow, Poland); <sup>3</sup>Pharmacol. et Toxicol. Department, University of Helsinki (Helsinki, Finland)



**P-2 9.P02 EFFECTS OF COPPER METABOLISM ON BEHAVIORAL FUNCTIONS AND BRAIN MONOAMINE CONTENTS IN WISTAR AND WILSON'S DISEASE MODEL RATS.** Noriko Fujiwara, Hiroyuki Iso, Nobue Kitanaka, Junichi Kitanaka, Daisaku Yoshihara, Tomomi Ookawara, and Keiichiro Suzuki. Hyogo College of Medicine (Nishinomiya, Japan)

**P-3 9.P03 TRACE ELEMENTS IN SERUM FROM PATIENTS WITH PARKINSON'S DISEASE – A PROSPECTIVE CASE-CONTROL STUDY.** Kristin Gellein<sup>1</sup>, Tore Syversen<sup>1</sup>, Eiliv Steinnes<sup>1</sup>, Tom Ivar Lund Nilssen<sup>2</sup>, Syverin Lierhagen<sup>1</sup>, Ole Petter Dahl<sup>3</sup>, Sascha Mitrovic<sup>4</sup>, Dusan Duraj<sup>5</sup>, and Trond Peder Flaten<sup>1</sup>. <sup>1</sup>Norwegian University of Science and Technology (Trondheim, Norway); <sup>2</sup>Norwegian University of Science and Technology (Trondheim, Norway); <sup>3</sup>Namsos Hospital (Namsos, Norway); <sup>4</sup>Levanger Hospital (Levanger, Norway); <sup>5</sup>Nevrolog Duraj AS (Levanger, Norway)

**P-4 9.P04 TRACE ELEMENTS IN CEREBROSPINAL FLUID AND BLOOD FROM PATIENTS WITH A RARE PROGRESSIVE CENTRAL AND PERIPHERAL DEMYELINATING DISEASE.** Kristin Gellein<sup>1</sup>, Jon Skogholt<sup>2</sup>, Jan Aaseth<sup>3</sup>, Gunnar Børre Thoresen<sup>4</sup>, Syverin Lierhagen<sup>5</sup>, Tore Syversen<sup>1</sup>, Eiliv Steinnes<sup>1</sup>, and Trond Peder Flaten<sup>1</sup>. <sup>1</sup>Norwegian University of Science and Technology (Trondheim, Norway); <sup>2</sup>Municipality of Sør-Odal (Skarnes, Norway); <sup>3</sup>Sykehuset Innlandet Kongsvinger (Kongsvinger, Norway); <sup>4</sup>Sykehuset Innlandet Elverum (Elverum, Norway); <sup>5</sup>Norwegian University of Science and Technology (Trondheim, Norway)

**P-5 9.P05 PREFERENTIAL DYSFUNCTION IN THE HIPPOCAMPUS IN ZINC DEFICIENCY.** Fumika Kan, Haruna Tamano, Hiromasa Itoh, Atsushi Takeda, and Naoto Oku. University of Zuoka (Zuoka, Japan)

**P-6 9.P06 INCREASE IN DEPRESSION-LIKE BEHAVIOR OF YOUNG RATS DURING ZINC DEFICIENCY.** Mika Kawamura, Haruna Tamano, Hiromasa Itoh, Atsushi Takeda, and Naoto Oku. University of Shizuoka (Shizuoka-shi, Japan)

**P-7 9.P07 IMPACT OF DIETARY VITAMIN B12 AND FOLIC ACID DEFICIENCY AND ANEMIA ON SCHOOL PERFORMANCE OF BEDOUIN CHILDREN IN SOUTHERN ISRAEL.** Rafik Masalha<sup>1</sup>, and Zaid Afawi<sup>2</sup>. <sup>1</sup>Faculty of Health Sciences, Ben-Gurion University of the Negev, Beer Sheva, Israel. (Beer Sheva, Israel); <sup>2</sup>Sourasky Medical Center, Tel-Aviv, Israel (Beer Sheva, Israel)

**P-8 9.P08 THE DIFFERENT INFLUENCE OF SOME BIVALENT CATIONS ON MORPHINE-INDUCED PHYSICAL DEPENDENCE.** Mihai Nechifor, Dan Chelarescu, Diana Ciubotariu, and Mihaela Pascu. Univ.Med. Pharm "Gr. T. Popa" Iasi (Iasi, Romania)

**P-9 9.P09 PRION PROTEIN PROTECTS AGAINST ZINC-MEDIATED CYTOTOXICITY BY MODIFYING INTRACELLULAR EXCHANGEABLE ZINC COMPARTMENTATION IN CULTURED CELLS.** Walid Rachidi<sup>1</sup>, Fabrice Chimienti<sup>2</sup>, Michel Seve<sup>3</sup>, and Alain Favier<sup>1</sup>. <sup>1</sup>CEA/UJF (Grenoble, France); <sup>2</sup>Mellitech (Grenoble, France); <sup>3</sup>UJF (Grenoble, France)

**P-10 9.P10 ZN PROTECTS DERANGEMENT OF ALCOHOLIZED RAT BRAIN MACRO- AND TRACE ELEMENTS (TE) CONTENT.** Anatoly Skalny, and Elena Vyatchanina. Institute of General Pathology and Pathophysiology RAMS (Moscow, Russian Federation)

**P-11 9.P11 EFFECT OF SUBCHRONIC MANGANESE INTOXICATION ON BRAIN MORPHOLOGY AND MANGANESE LEVEL IN RAT PUPS.** Tamar Bikashvili<sup>1</sup>, Asmat Shukakidze<sup>2</sup>, Nino Chkhartishvili<sup>3</sup>, and Ilia Lazrshvili<sup>4</sup>. <sup>1</sup>I.Beritashvili Institute of Physiology (Tbilisi, Georgia); <sup>2</sup>Tbilisi Medical University (Tbilisi, Georgia); <sup>3</sup>Kutaisi State University (Kutaisi, Georgia); <sup>4</sup>I.Beritashvili Institute of Physiology (Tbilisi, Georgia)

**P-12 9.P12 TRACE ELEMENTS IN CEREBROSPINAL FLUID OF PATIENTS AFFECTED BY NEURODEGENERATIVE DISEASES: AN OVERVIEW OF ANALYTICAL DATA.** Margherita Speziali<sup>1</sup>, and Michela Di Casa<sup>2</sup>. <sup>1</sup>CNR (Pavia, Italy); <sup>2</sup>Dip. Chimica Generale Universit à Pavia (Pavia, Italy)

**P-13 9. P13 ASSOCIATION OF BODY IRON STORES WITH DEVELOPMENT AMONG PRESCHOOL CHILDREN.** Usha Dhingra<sup>1</sup>, Sunil Sazawal<sup>1</sup>, Archana Sarkar<sup>2</sup>, Saikat Deb<sup>1</sup>, Pratibha Dhingra<sup>2</sup>, Venugopal P Menon<sup>2</sup>, and Robert E Black<sup>1</sup>. <sup>1</sup>Johns Hopkins University (Baltimore, USA); <sup>2</sup>Center for Micronutrient Research, Annamalai University (New Delhi, India)

**P-14 9.P14 PROTECTIVE EFFECT OF SELENIUM ON CIPROFLOXACIN-INDUCED CONVULSIONS IN MICE.** Filiz Hincal<sup>1</sup>, and Tambay Taskin<sup>2</sup>. <sup>1</sup>Hacettepe University (Ankara, Turkey); <sup>2</sup>Actavis (Istanbul, Turkey)

**P-15 9.P15 HEPATIC AND PRESYMPTOMATIC WILSON DISEASE PATIENTS RELAPSED WITH PSYCHIATRIC SYMPTOMS DUE TO POOR MEDICATION COMPLIANCE.** Misako Inoue<sup>1</sup>, Norikazu Shimizu<sup>1</sup>, Yoshinao Fujikawa<sup>1</sup>, Koichi Mizuguchi<sup>2</sup>, and Tsugutoshi Aoki<sup>1</sup>. <sup>1</sup>Toho university (Tokyo, Japan); <sup>2</sup>National Center for Child Medical Health and Development (Tokyo, Japan)

**P-16 9.P16 TRACE ELEMENT FINGERPRINTS OF HUMAN DEPRESSION.** Berislav Momcilovic, Juraj Prejac, and Nikola Ivicic. Institute for Medical Research and Occupational Health (IMI) (Zagreb, Croatia)

**P-17 9.P17 ZINC INFLUENCE ON REWARD SYSTEM IN NA İVE AND MORPHINE-TREATED RATS.** Diana Ciubotariu<sup>1</sup>, Mihaela Pascu<sup>2</sup>, and Mihai Nechifor<sup>2</sup>. <sup>1</sup>University of Medicine and Pharmacy, Iasi, ROMANIA (Iasi, Romania); <sup>2</sup>University of Medicine and Pharmacy (Iasi, Romania)

**P-18 9.P18 ANTIOXIDANT ENZYME LEVELS AND LIPID PEROXIDATION IN SCHIZOPHRENIC PATIENTS AND THEIR NON-AFFECTED SIBLINGS.** Abdelhamid Kerkeni<sup>1</sup>, Leila Ben Othmane<sup>1</sup>, Chiraz Fendri<sup>1</sup>, Muriel Bost<sup>2</sup>, Guy Chazot<sup>2</sup>, Lotfi Gaha<sup>1</sup>, and Anwar Mechri<sup>1</sup>. <sup>1</sup>Facult é de Medecine (Monastir, Tunisia); <sup>2</sup>Institute for UNESCO (Lyon, France)

### Category 11: Toxicity of Trace Elements

**Chair: Michael Aschner**

**Co-Chair: Max Costa**

**P-19 11.P26 CESIUM TOXICITY ARISING FROM ANTICANCER THERAPY.** Andre Mattman<sup>1</sup>, Daisy Baulcomb<sup>2</sup>, Mark Wylie<sup>2</sup>, Thomas Mock<sup>2</sup>, Robert Brown<sup>3</sup>, Wendy Gordon<sup>3</sup>, and Matthew Wiens<sup>4</sup>. <sup>1</sup>Children's & Women's Health Centre of British Columbia (Vancouver, Canada); <sup>2</sup>Children's & Women's Health Centre of British Columbia (Vancouver, Canada); <sup>3</sup>Royal Columbian Hospital (New Westminster, Canada); <sup>4</sup>University of British Columbia (Vancouver, Canada)

**P-20 11.P01 THE CELLULAR EFFECTS INDUCED BY PB2+ AND ZN2+ ACTION ON HUMAN ERYTHROCYTES AND LYMPHOCYTES.** Igor Volotovski, and Ekaterina Slobozanina. Institute of Biophysics and Cell Engineering, Belarus Satellite Center of TEI for UNESCO (Minsk, Belarus)

**P-21 11.P02 ZINC CONCENTRATION IN HUMAN AUTOPSY AND BODY FLUIDS.** Teresa Lech, and Jozefa Krystyna Sadlik. Institute of Forensic Research (Krakow, Poland)

**P-22 11.P03 ESTIMATION OF COMMON EFFECT OF ELEUTHEROCOCCUS SENTICOSUS (RUPR. ET MAXIM. EX MAXIM) EXTRACT AND CADMIUM ON MITOTIC AND APOPTOTIC ACTIVITY OF LIVER CELLS.** Alina Smalinskiene<sup>1</sup>, Vaiva Lesauskaite<sup>1</sup>, Virgilijus Zitkevičius<sup>2</sup>, Nijole Savickiene<sup>2</sup>, Stanislovas Ryselis<sup>3</sup>, Oleg Abdrakhmanov<sup>3</sup>, Ilona Sadauskiene<sup>3</sup>, Leonid Ivanov<sup>3</sup>, and Arunas Savickas<sup>4</sup>. <sup>1</sup>Institute of Cardiology Kaunas University of Medicine (Kaunas, Lithuania); <sup>2</sup>Department of Pharmaceutical Chemistry and Pharmacognosy Kaunas University of Medicine (Kaunas, Lithuania); <sup>3</sup>Institute of Biochemical Research, Kaunas University of Medicine (Kaunas, Lithuania); <sup>4</sup>Department of Drug Technology and Pharmaceutical Management, Kaunas University of Medicine (Kaunas, Lithuania)

**P-23 11.P04 COMPARISON OF EFFECTS OF ECHINACEA PURPUREA AND ELEUTHEROCOCCUS SENTICOSUS (RUPR. ET MAXIM. EX MAXIM) EXTRACTSON THE ACCUMULATION OF CADMIUM IN DIFFERENT ORGANS AN MITOTIC ACTIVITY OF LIVER CELLS.** Virgilijus Zitkevičius<sup>1</sup>, Nijole Savickiene<sup>1</sup>, Alina Smalinskiene<sup>2</sup>, Vaiva Lesauskaite<sup>2</sup>, Stanislovas Ryselis<sup>3</sup>, Oleg Abdrakhmanov<sup>3</sup>, Ilona Sadauskiene<sup>3</sup>, Leonid Ivanov<sup>3</sup>, and Arunas Savickas<sup>4</sup>. <sup>1</sup>Department of Pharmaceutical

Chemistry and Pharmacognosy Kaunas University of Medicine (Kaunas, Lithuania); <sup>2</sup>Institute of Cardiology, Kaunas University of Medicine (Kaunas, Lithuania); <sup>3</sup>Institute of Biochemical Research, Kaunas University of Medicine (Kaunas, Lithuania); <sup>4</sup>Department of Drug Technology and Pharmaceutical Management, Kaunas University of Medicine (Kaunas, Lithuania)

**P-24 11.P05 TOXIC METHYLATION OF DIMETHYLTIN TO TRIMETHYLTIN IN HUMAN.** Yoko Endo. Japan Labour Health and Welfare Organization (Tokyo, Japan)

**P-25 11.P06 STRATEGIES FOR SAFE AND EFFECTIVE THERAPEUTIC MEASURES AGAINST METALS : ROLE OF MICRONUTRIENTS.** Sangeeta Shukla. Jiwaji University (Gwalior, India)

**P-26 11.P07 GENE EXPRESSION ANALYSIS OF THE MOUSE BRAIN PERINATALLY EXPOSED TO METHYLMERCURY AND/OR POLYCHLORINATED BIPHENYLS.** Miyuki Shimada<sup>1</sup>, Satomi Kameo<sup>2</sup>, Norio Sugawara<sup>3</sup>, Satomi Murata-Mizukami<sup>4</sup>, Takashi Ohba<sup>2</sup>, Kunihiko Nakai<sup>2</sup>, Hitoshi Iwahashi<sup>4</sup>, and Hiroshi Satoh<sup>2</sup>. <sup>1</sup>Tohoku University Graduate School of Medicine (Sendai, Japan); <sup>2</sup>Environmental Health Sciences, Tohoku University Graduate School of Medicine (Sendai, Japan); <sup>3</sup>Department of Neuro-psychiatry, Hirosaki University (Hirosaki, Japan); <sup>4</sup>Human Stress Signal Research Center, AIST (Ikeda, Japan)

**P-27 11.P08 EFFECT OF NICKEL ON THE TESTICULAR AND EPIDIDYMAL STRUCTURE AND ITS DISTRIBUTION IN THE RAT ORGANISM AFTER AN EXPERIMENTAL ADMINISTRATION.** Robert Toman<sup>1</sup>, Lenka Babikova<sup>1</sup>, Jozef Golian<sup>1</sup>, Peter Massanyi<sup>1</sup>, Svatoslav Hluchy<sup>1</sup>, Norbert Lukac<sup>1</sup>, Robert Stawarz<sup>2</sup>, Grzegorz Formicki<sup>2</sup>, and Peter Cupka<sup>1</sup>. <sup>1</sup>Slovak Agricultural University (Nitra, Slovakia); <sup>2</sup>Pedagogical University of Krakow (Krakow, Poland)

**P-28 11.P09 SPECIATION OF MERCURY IN THE TISSUES OF THE RATS WHICH RECEIVED DENTAL AMALGAM FILLINGS.** Yoshifumi Takahashi<sup>1</sup>, Shozo Tsuruta<sup>1</sup>, Akira Yasutake<sup>2</sup>, and Masumi Sawada<sup>2</sup>. <sup>1</sup>Aichi-Gakuin University (Nagoya, Japan); <sup>2</sup>National Institute for Minamata Disease (Minamata, Japan)

**P-29 11.P10 HEALTH CONSEQUENCES OF EXPOSURE TO DIET SOURCED ENVIRONMENTAL CADMIUM IN CENTRAL JAMAICA.** Paul Wright, Gerald Lalor, Vaughn Rattray, and Richard Hanson. International Centre for Environmental and Nuclear Sciences (ICENS) (St Andrew, Jamaica)

**P-30 11.P11 SELENIUM AS AN ANTIOXIDANT IN THE THYROID GLAND.** Monireh Aghajany<sup>1</sup>, Saeid Kalantari<sup>2</sup>, and Abdolrasoul Sobhani<sup>2</sup>. <sup>1</sup>Isfahan University Of Medical Sciences (Isfahan, Islamic Rep. of Iran); <sup>2</sup>Guilan University of Medical Sciences (Rasht, Iran, Islamic Rep. of)

**P-31 11.P12 MORPHOFUNCTION THE CONDITION OF THE LIVER AT LOADING ORGANISM TOXIC BY DOZES A CADMIUM AND LEAD ON THE BACKGROUND OF VARIOUS SECURITY OF THE DIET BY MINERAL SUBSTANCE.** Svyatoslav Lebedev<sup>1</sup>, Sergei Mirosnikov<sup>1</sup>, Anatolii Skalny<sup>1</sup>, Elena Barisheva<sup>1</sup>, Valentina Polyakova<sup>2</sup>, and Elena Sizova<sup>1</sup>. <sup>1</sup>Orenburg State University (Orenburg, Russian Federation); <sup>2</sup>Orenburg Medicine University (Orenburg, Russian Federation)

**P-32 11.P13 DISTRIBUTION AND METABOLISM OF TELLURIUM IN RATS INGESTED WITH SODIUM TELLURITE.** Yasumitsu Ogra, Reina Kobayashi, Kazuya Ishiwata, and Kazuo T. Suzuki. Chiba University (Chiba, Japan)

**P-33 11.P14 ASSESSMENT OF EFFECT OF ELEUTHEROCOCCUS SENTICOSUS (RUPR. ET MAXIM. EX MAXIM) EXTRACT ON THE ACCUMULATION OF CADMIUM IN SPLEEN AND THE EXTENT OF MACROFAGUS AREA.** Nijole Savickiene<sup>1</sup>, Virgilijus Zitkevičius<sup>1</sup>, Alina Smalinskiene<sup>2</sup>, Vaiva Lesauskaite<sup>2</sup>, Stanislovas Ryselis<sup>3</sup>, Oleg Abdrakhmanov<sup>3</sup>, Ilona Sadauskiene<sup>3</sup>, Leonid Ivanov<sup>3</sup>, and Arunas Savickas<sup>4</sup>. <sup>1</sup>Department of Pharmaceutical Chemistry and Pharmacognosy, Kaunas University of Medicine (Kaunas, Lithuania); <sup>2</sup>Institute of Cardiology, Kaunas University of Medicine (Kaunas, Lithuania); <sup>3</sup>Institute for Biomedical Research, Kaunas University of Medicine (Kaunas, Lithuania); <sup>4</sup>Department of Drug Technology and Pharmaceutical Management, Kaunas University of Medicine (Kaunas, Lithuania)

**P-34 11.P15 A WILSON DISEASE PATIENT WITH RECURRENT ACUTE HEPATITIS DUE TO POOR MEDICAL COMPLIANCE.** Kaoru Hirai, Atsuko Watanabe, Norikazu Shimizu, and Tsugutoshi Aoki. Toho University (Tokyo, Japan)

**P-35 11.P16 EFFECT OF TRACE ELEMENTS IN A COMPLEX PREPARATE (IMMUNOVET-HBM™ TRADE NAME) ON THE ACTIVITY OF DIGESTIVE ENZYMES IN BROILER CHICKENS.** Kosa Emma, Jakab Laszlo, and Nagy Gyula. Szent Istvan. University Faculty Of Veterinary Science (Budapest, Hungary)

**P-36 11.P17 AMELIORATIVE EFFECTS OF N-ACETYL CYSTEINE ALONG WITH THE COMBINATION OF ANTIOXIDANTS AGAINST CHRONIC EXPOSURE INDUCED BY METHYLMERCURY TOXICITY.** Deepmala Joshi, Sadhana Shrivastava, and Sangeeta Shukla. Jiwaji University (Gwalior, India)

**P-37 11.P18 EFFECTIVENESS OF COMBINATION THERAPY AGAINST SUBCHRONIC EXPOSURE OF ALUMINIUM.** Sadhana Shrivastava<sup>1</sup>, Varsha Singh<sup>1</sup>, Deepmala Joshi<sup>1</sup>, and Mohamed Abdulla<sup>2</sup>. <sup>1</sup>Jiwaji University (Gwalior, India); <sup>2</sup>Trace Element-Institute for UNESCO (Lyon, France)

**P-38 11.P19 INVESTIGATION OF CYTOTOXIC EFFECTS OF THALLIUM ACETATE AND ELLAGIC ACID ON NIH 3T3 CELL LINE.** Filiz Alanyali, Ahmet Ozata, and Oge Basoglan. Anadolu University (Eskişehir, Turkey)

**P-39 11.P20 SPECIATION ANALYSIS BY HPLC-ICP-MS OF ARSENIC IN URINE OF INDIVIDUALS DRINKING POLLUTED WATER IN BANGLADESH.** Ginji Endo<sup>1</sup>, Md. Ahsan Habib<sup>1</sup>, Akihisa Hata<sup>1</sup>, Yoshiaki Nakajima<sup>2</sup>, Michiko Matsuda<sup>2</sup>, Masanori Ogawa<sup>2</sup>, and Yoko Endo<sup>2</sup>. <sup>1</sup>Osaka City University (Osaka, Japan); <sup>2</sup>Japan Labour Health Organization (Tokyo, Japan)

**P-40 11.P21 ROLE OF METALLOTHIONEINES IN THE MECHANISM OF HEAVY METALS TOXIC EFFECTS.** Leonid Shafran, Elena Pykhteeva, and Dmitry Bolshoy. Ukrainian Scientific and Research Institute of Medicine on Transport (Odessa, Ukraine)

**P-41 11.P22 SMALL DOSES OF MERCURY EXPOSURE: WHAT DOES IT MEAN?** Dmitry Bolshoy, Elena Pykhteeva, Leonid Shafran, and Elena Tretiakova. Ukrainian Scientific and Research Institute of Transport Medicine (Odessa, Ukraine)

**P-42 11.P23 HYGIENE AND TOXICOLOGY OF ZN- AND PB-CONTAINING SHIP PAINTS.** Diana Timoshina<sup>1</sup>, Alexandr Tretiakov<sup>1</sup>, Olga Kapustinskaya<sup>1</sup>, and Galina Burlak<sup>2</sup>. <sup>1</sup>Ukrainian Scientific and Research Institute of Transport Medicine (Odessa, Ukraine); <sup>2</sup>Ministry of Public Health of Ukraine (Kiev, Ukraine)

**P-43 11.P24 NEW ASPECTS OF METALLONEPHROTOXICOSES PATHOGENESIS.** Anatoly Gozhenko, and Leonid Shafran. Ukrainian Scientific and Research Institute of Transport Medicine (Odessa, Ukraine)

**P-43 11.P27 MATERNAL-TO-FETAL CADMIUM TRANSFER AND ITS EFFECTS ON TRACE ELEMENT REGULATION IN THE REPRODUCTIVE ORGANS OF FEMALE RATS.** Hisayoshi Ohta<sup>1</sup>, Yasuhiro Nakamura<sup>1</sup>, Yohei Ohkawa<sup>1</sup>, Yoshifumi Ohmori<sup>1</sup>, and Keiji Suzuki<sup>2</sup>. <sup>1</sup>Kitasato University (Sagamihara, Kanagawa, Japan); <sup>2</sup>Gunma University (Maebashi, Japan)

**P-44 11.P25 CADMIUM IN URINE AND KIDNEY BIOMARKERS IN SWEDISH WOMEN.** Gerd S ällsten. Sahlgrenska Academy and University Hospital (G öteborg, Sweden)

#### Category 12: Trace Element Detection and Quantification

**Chair: Enrico Sabbioni**

**Co-Chair: Maria Luisa de Carvalho**

**Co-Chair: Edouard Jallot**

**P-45 12.P01 DETERMINATION OF SERUM/PLASMA CERULOPLASMIN AND FREE-COPPER BY HPLC/INDUCTIVELY COUPLED PLASMA-MASS SPECTROMETRY FOR THE DIAGNOSIS OF WILSON DISEASE.** Kenji Kobayashi<sup>1</sup>, Rizky Abdulah<sup>1</sup>, Yoko Katsuya<sup>1</sup>, Chie Fujisawa<sup>2</sup>, Takeaki Nagamine<sup>3</sup>, Tomoko Suzuki<sup>4</sup>, Takashi Ishige<sup>4</sup>, Akihiro Morikawa<sup>4</sup>, Masami Murakami<sup>5</sup>, Norikazu Shimizu<sup>6</sup>, Hiroko Kodama<sup>2</sup>, and Hiroshi Koyama<sup>1</sup>. <sup>1</sup>Department of Public Health, Gunma University Graduate School of Medicine (Mebashi, Japan); <sup>2</sup>Department of Pediatrics, Teikyo University School of Medicine (Tokyo, Japan); <sup>3</sup>School of Health Science, Gunma University (Maebashi, Japan); <sup>4</sup>Department of Pediatrics & Developmental Medicine, Gunma University Graduate School of Medicine (Maebashi, Japan); <sup>5</sup>Department of Clinical Laboratory Medicine, Gunma University Graduate School of Medicine (Maebashi, Japan); <sup>6</sup>The second Department of Pediatrics, Toho University School of Medicine (Tokyo, Japan)

**P-46 12.P02 DETERMINATION OF LEAD AND CADMIUM IN VARIOUS FOOD SAMPLES BY GRAPHITE FURNACE ATOMIC ABSORPTION SPECTROMETRY AFTER SEPARATION BY USING THE COPRECIPITATION METHOD.** T ilay Oymak<sup>1</sup>, Şerife Tokalioğlu<sup>2</sup>, Vedat Yılmaz<sup>2</sup>, Şenol Kartal<sup>2</sup>, and Didem Aydin<sup>2</sup>. <sup>1</sup>Gazi University (Ankara, Turkey); <sup>2</sup>Erciyes University (Kayseri, Turkey)

**P-47 12.P03 DEVELOPMENT OF AN ANALYTICAL METHOD FOR THE DETERMINATION OF CADMIUM AND LEAD IN OFFAL BY Z-ETA-AAS.** Sepe Alessandra, Giordano Rosa, D'ilio Sonia, Colabucci Andrea, Ciprotti Maria, Di Gregorio Marco, and Costantini Sergio. Istituto Superiore di sanit à(Rome, Italy)

**P-48 12.P04 SYNTHESIS AND APPLICATION OF A NEW CHELATING RESIN FUNCTIONALIZED WITH SALICYLALDOXIME FOR THE DETERMINATION OF PB(II), NI(II), CU(II) AND MN(II) IONS IN WATER SAMPLES BY FLAME ATOMIC ABSORPTION SPECTROMETRY.** Şerife Tokalioğlu, and Şenol Kartal. Erciyes University (Kayseri, Turkey)

**P-49 12.P05 EFFECTS OF FORMALIN FIXATION ON TRACE ELEMENT CONCENTRATIONS IN BIOLOGICAL TISSUE.** Kristin Gellein<sup>1</sup>, Trond Peder Flaten<sup>1</sup>, Ketih Erikson<sup>2</sup>, Michael Aschner<sup>3</sup>, and Tore Syversen<sup>1</sup>. <sup>1</sup>Norwegian University of Science and Technology (Trondheim, Norway); <sup>2</sup>Univeristy of North Carolina Grensboro (Grensboro, USA); <sup>3</sup>Vanderbilt University Medical Center (Nashville, USA)

**P-50 12.P06 THE CRL-ISS PROFICIENCY TESTS ON TRACE ELEMENTS IN MEAT AND MILK: ORGANIZATION AND RESULTS.** Ciaralli Laura, Senofonte Oreste, Giordano Rosa, Violante Nicola, Sepe Alessandra, D'Amato Marilena, Colabucci Andrea, and Costantini Sergio. Istituto Superiore di Sanit à(Rome, Italy)

**P-51 12.P07 DRINKING WATER: AN ESSENTIAL CONDITION FOR THE HUMAN EXISTENCE.** Cical Elena Gabriela<sup>1</sup>, Mecea Mircea<sup>1</sup>, Gasparik Geza<sup>1</sup>, and Burtica Georgeta<sup>3</sup>. <sup>1</sup>Sc Vital Sa (Baia Mare, Romania); <sup>2</sup>University "Politehnica" Timisoara (Timisoara, Romania)

**P-52 12.P08 IODINE SPECIATION IN THYROID GLAND BY HIGH-PERFORMANCE LIQUID CHROMATOGRAPHY COUPLED WITH INDUCTIVELY COUPLED PLASMA MASS SPECTROMETRY.** Nereida Carrion<sup>1</sup>, Jos éZabala<sup>1</sup>, Miguel Murillo<sup>1</sup>, Nelly Seijas<sup>2</sup>, and Leopoldo Duarte<sup>3</sup>. <sup>1</sup>Universidad Central de Venezuela (Caracas, Venezuela); <sup>2</sup>Morgue Forense (Caracas, Venezuela); <sup>3</sup>Hospital Vargas de Caracas (Caracas, Venezuela)

**P-53 12.P09 FIELD-BASED ARSENIC SPECIATION IN ARGENTINEAN WATER SAMPLES: LINK TO ARSENIC POISONING.** Jenny O'Reilly<sup>1</sup>, Michael Watts<sup>2</sup>, and Neil Ward<sup>1</sup>. <sup>1</sup>University of Surrey (Guildford, United Kingdom); <sup>2</sup>British Geological Survey (Nottingham, United Kingdom)

**P-54 12.P10 MULTIVARIATE DATA VISUALIZATION METHODS BASED ON ELEMENTAL ANALYSIS OF HERBAL DRUGS BY ICP-MS.** Biljana Marosanovic<sup>1</sup>, Vesna Kilibarda<sup>2</sup>, and Slavica Razic<sup>3</sup>. <sup>1</sup>SP Laboratorija (Becej, Serbia); <sup>2</sup>Military Medical Academy, Poison Control Centre, Department of toxicological chemistry (Belgrade, Serbia); <sup>3</sup>Faculty of Pharmacy, Institute of Analytical Chemistry, University of Belgrade (Belgrade, Serbia)

**P-55 12.P11 METHYL MERCURY IN BIOLOGICAL FLUIDS BY ISOTOPE DILUTION.** Douglas Baxter, Ilia Rodushkin, and Ingemar Berglund; ALS Scandinavia (Luleå Sweden)

**P-56 12.P12 ENVIRONMENTAL AND HEALTH CONSEQUENCES OF MERCURY AIR POLLUTION.** Zdravko Spiric<sup>1</sup>, Marina Frontasyeva<sup>2</sup>, Trajce Stafilov<sup>3</sup>, Vangelica Enimiteva<sup>4</sup>, Dragan Bukovec<sup>5</sup>, and Zrinka Mesic<sup>1</sup>; <sup>1</sup>Oikon Ltd. - Institute for Applied Ecology (Zagreb, Croatia); <sup>2</sup>Frank Laboratory of Neutron Physics, Joint Institute for Nuclear Research (Dubna, Russian Federation); <sup>3</sup>Institute of Chemistry Faculty of Science St. Cyril and Methodius University (Skopje, Macedonia); <sup>4</sup>Institute of Chemistry Faculty of Science St. Cyril and Methodius University (Skopje, Macedonia); <sup>5</sup>Croatian Natural History Museum Zagreb (Zagreb, Croatia)

**P-57 12.P13 PRE-ANALYTICAL FACTORS CAN CAUSE INTERMITTENT RAISED URINE CADMIUM RESULTS.** Susan Grant, Trevor Walmsley, Ngaire Smidt, Chris Florkowski, and Peter George. Canterbury Health Laboratories (Christchurch, New Zealand)

**P-58 12.P14 NOVEL DEVICE FOR DIRECT MEASUREMENT OF NON-CERULOPLASMIN COPPER IN WILSON'S DISEASE.** John Althaus, Kyong-Hoon Lee, Charles Bisgaier, and Steve Kanzer. Pipex Pharmaceuticals (Ann Arbor, USA)

**P-59 11.P28 TETRATHIOMOLYBDATE FOR WILSON'S DISEASE INHIBITS COPPER-DEPENDENT LIPID PEROXIDATION.** John Althaus<sup>1</sup>, Christian Althaus<sup>1</sup>, Charles Bisgaier<sup>1</sup>, Steve Kanzer<sup>1</sup>, and George Brewer<sup>2</sup>. <sup>1</sup>Pipex Pharmaceuticals (Ann Arbor, USA); <sup>2</sup>University of Michigan (Ann Arbor, USA)

**14:30-17:30 Four Concurrent Sessions (Symposia F and G; Minisymposium #6, #7, and #8)**

### **Symposium F--MINOS**

**Symposium: Mineral Elements and Molecular Signaling as it Relates to Human Disease**

*(ISTERH/NTES/HTES '07 acknowledges the generous support from AKZO NOBEL FUNCTIONAL CHEMICALS and ELSEVIER)*

**Chair: Bernhard Hennig**

**Co-Chair: Emily Ho**

**Purpose of Session:** The many new findings to be presented will help to understand the nutritional needs for proper vascular functions, and especially the involvement of micronutrients like zinc, selenium and copper on cellular antioxidant defense as it relates to the pathology of vascular diseases. Zinc deficiency can induce oxidative stress, B and AP-1, and increase endothelialkincreased the DNA binding activity of NF- production of IL-6. Low zinc levels may also compromise DNA integrity and increase cancer risk, probably through modulation of oxidative-stress sensitive cell signaling. Similar to zinc, oxidative stress in tumor progression also can be controlled by selenium. Preincubation of fibroblasts with selenite, selenoprotein P or other antioxidants can lower lipid peroxidation and subsequent inhibition of expression of biomarkers for myofibroblastic cells. Selenium and other trace elements may contribute to anti-invasive and anti-metastatic strategies. Selenium also is an important micronutrient in the regulation of immune function and viral pathogenesis. Finally, copper transporters and chaperones may provide critical regulatory roles in copper trafficking and cellular copper signaling associated with antioxidant enzymes such as Cu/Zn superoxide dismutase. Thus, these findings will provide practical implications of high importance for public health.

**14:30 "Role of zinc in endothelial cell function: implications in atherosclerosis", Bernhard Hennig**

**15:00 "Oxidative stress in tumor progression: intervention by selenium", Peter Brenneisen**

**15:30 "Influence of zinc on oxidative stress, DNA integrity and cancer risk", Emily Ho**

**16:00 Delegate Coffee Break (OLYMPUS)**

**16:30 "Maintaining copper balance: roles of copper transporters and chaperones", Jesse Bertinato**

## Symposium G--ATHENA-ARTEMIS

*Symposium: Is copper involved in carcinogenesis/ carcinostatics?*

(*ISTERH/NTES/HTES '07 acknowledges the generous support from TEIKYO UNIVERSITY*)

*Chair: Hiroko Kodama*

*Co-Chair: Norikazu Shimizu*

*Purpose of Session:* This symposium summarizes new information on the involvement of copper in carcinogenesis/carcinostatics. The Long-Evans cinnamon (LEC) rat, an animal model of Wilson's disease, suffers from hepatocellular carcinoma in a very high frequency. Hepatocellular carcinoma has also been reported in patients with Wilson disease who could survive for a long period by treatments with Wilson's disease. It has also been reported that copper accumulates in cancer cells of the patients with hepatocellular carcinoma who are not the patients with Wilson's disease. ATP7B, the responsible copper-transporter for Wilson's disease, has recently been reported to be expressed in various kinds of malignant cells and to influence the effect of anticancer medicines.

14:30 "Possible association of Wilson's disease with hepatocellular carcinoma", **Yan-Hong Gu**

15:00 "Carcinogenesis in LEC rat and patients with Wilson disease", **Norikazu Shimizu**

15:30 "The effects of Copper on Carcinoma Development and Angiogenesis", **Masaaki Ebara**

16:00 Delegate Coffee Break (OLYMPUS)

16:30 "Copper transporters regulate the cellular pharmacology of cisplatin", **Stephen Howell**

## Minisymposium #7--EUROPA-DANAE

*Chair: Atsushi Takeda*

*Co-Chair: Andrzej Szutowicz*

### Category 9: Neurological Diseases & Neuropsychological Impairment

14:30 9.S01 **UNIQUE RESPONSE OF EXTRACELLULAR ZINC IN THE VENTRAL HIPPOCAMPUS AGAINST NOVELTY STRESS.** Shingo Kanno, Naomi Sakurada, Akira Minami, Atsushi Takeda, and Naoto Oku. University of Shizuoka (Shizuoka, Japan)

14:45 9.S02 **METAL EXPOSURE IN NEURODEGENERATIVE DISORDERS.** Per M Roos, and Monica Nordberg. Karolinska Institutet (Stockholm, Sweden)

15:00 9.S03 **INVOLVEMENT OF ZINC IN SYNAPTIC PLASTICITY AND NEURODEGENERATION IN THE HIPPOCAMPUS VIA CROSSTALK WITH CALCIUM.** Atsushi Takeda, Sayuri Fuke, Naomi Sakurada, Akira Minami, and Naoto Oku. University of Shizuoka (Shizuoka, Japan)

15:15 9.S04 **BIOMARKERS IN CEREBROSPINAL FLUID IN ALZHEIMER'S DISEASE AND NORMAL COGNITION.** Monica Nordberg<sup>1</sup>, Nina Johansson<sup>2</sup>, Hans Basun<sup>3</sup>, Kaj Blennow<sup>4</sup>, and Maria Eriksdotter-Jönhagen<sup>5</sup>. <sup>1</sup>Karolinska Institutet (SE-17177 Stockholm, Sweden); <sup>2</sup>Department NVS, Section of Clinical Geriatrics, Karolinska Institute and Karolinska University Hospital, Huddinge SE-141 86 Stockholm, Sweden Institute Environmental Medicine, Karolinska Institute (Stockholm, Sweden); <sup>3</sup>AstraZeneca, Clinical Science, R&D Södertälje, SE-151 85 and Department of Public Health / Geriatrics, Uppsala University Hospital, SE-751 25 (Södertälje, Uppsala, Sweden); <sup>4</sup>Department of Clinical Neuroscience, Section of Experimental Neuroscience, The Sahlgrenska Academy at Gothenburg University, SE-43180 (Gothenburg, Sweden); <sup>5</sup>Department NVS, Section of Clinical Geriatrics, Karolinska Institute and Karolinska University Hospital, Huddinge SE-141 86 (Stockholm, Sweden)

15:30 9.S05 **ENHANCEMENT OF AGGRESSIVE BEHAVIOR OF YOUNG MICE INDUCED WITH SOCIAL ISOLATION IN ZINC DEFICIENCY.** Haruna Tamano, Kan Fumika, Atsushi Takeda, and Naoto Oku. University of Shizuoka (Shizuoka, Japan)

15:45 9.S06 **EFFECTS OF A SE RESTRICTED-DIET ON BRAIN ANTIOXIDANT STATUS AND BRAIN FUNCTION IN AGED RATS.** Isabelle Hininger-Favier<sup>1</sup>, Frederic Canini<sup>2</sup>, Farida Belem<sup>3</sup>, Mireille Osman<sup>3</sup>, Veronique Ducros<sup>4</sup>, and Anne-Marie Rousset<sup>5</sup>. <sup>1</sup>LBFA (NVM) (Grenoble, France); <sup>2</sup>CRSSA (La Tronche, France); <sup>3</sup>INSERM U844-UJF Grenoble (Grenoble, France); <sup>4</sup>DBI-CHU Grenoble (Grenoble, France); <sup>5</sup>INSER U844-UJF Grenoble (Grenoble, France)

16:00 Delegate Coffee Break (OLYMPUS)

16:30 9.S07 **DISTURBANCES IN ACETYL-COA METABOLISM AND CYTOTOXIC EFFECTS OF ZINC IN SN56 CHOLINERGIC NEUROBLASTOMA CELLS.** Andrzej Szutowicz, Anna Ronowska, Agnieszka Jankowska-Kulawy, and Hanna Bielarczyk. Medical University of Gdansk, Department of Laboratory Medicine (Gdansk, Poland)

### Category 5: Disorders of Aging

16:45 5.S01 **SERUM SELENIUM, COPPER AND ZINC IN ELDERLY POPULATION FROM COASTAL AND CONTINENTAL AREAS OF CROATIA.** Jasna Jurasovic, Mladen Pavlovic, Alica Pizent, and Naima Corovic. Institute for Medical Research and Occupational Health (Zagreb, Croatia)

17:00 5.S02 **STUDIES ON MOLECULAR MECHANISMS IN UNDERSTANDING COPPER INDUCED AMYLOID BETA AGGREGATION AND ITS RELEVANCE TO ALZHEIMER'S DISEASE.** Veer Bala Gupta<sup>1</sup>, Indi SS 2, and KSJ Rao<sup>1</sup>. <sup>1</sup>Central Food Technological Research Institute (Mysore, India); <sup>2</sup>Indian Institute of Science (Bangalore, India)

### Minisymposium #8--LEDA

Chair: **Sunil Sazawal**

Co-Chair: **Nicholas Ralston**

### Category 11: Toxicity of Trace Elements

14:30 11.S01 **IMMUNOLOCALIZATION OF METALLOTHIONEINS IN LIVER AND KIDNEY OF WISTAR RATS EXPOSED TO CADMIUM.** Yihuai Liang<sup>1</sup>, Huiqi Li<sup>1</sup>, Lijian Lei<sup>1</sup>, Taiyi Jin<sup>1,3</sup>, Monica Nordberg<sup>2</sup>, and Gunnar Nordberg<sup>3</sup>. <sup>1</sup>Department of Occupational Health, School of Public Health, Fudan University (Shanghai, China); <sup>2</sup>Institute of Environmental Medicine, Karolinska Institutet (Stockholm, Sweden); <sup>3</sup>Environmental Medicine, Department of Public Health and Clinical Medicine, Umea University (Umea, Sweden)

14:45 11.S02 **ROLE OF SELENIUM IN SEAFOOD RISK:BENEFIT EVALUATIONS.** Nicholas Ralston<sup>1</sup>, and John Kaneko<sup>2</sup>. <sup>1</sup>University of North Dakota (Grand Forks, USA); <sup>2</sup>PACMAR (Honolulu, USA)

15:00 11.S03 **ZINC PROTOPORPHYRIN IS A STRONG PREDICTOR OF LEAD LEVELS IN DEVELOPING COUNTRY SETTINGS WHERE LEAD LEVELS ARE HIGH.** Sunil Sazawal<sup>1</sup>, Usha Dhingra<sup>1</sup>, Saikat Deb<sup>1</sup>, Pratibha Dhingra<sup>2</sup>, Archana Sarkar<sup>2</sup>, Venugopal P Menon<sup>2</sup>, and Robert E Black<sup>1</sup>. <sup>1</sup>Johns Hopkins University (Baltimore, USA); <sup>2</sup>Center for Micronutrient Research, Annamalai University (New Delhi, India)

15:15 11.S04 **CADMIUM REDUCES BETA-CASEIN GENE EXPRESSION IN SECRETING MURINE MAMMARY EPITHELIAL CELLS.** Helena Öhrvik, Maria Nyström, Agneta Oskarsson, and Jonas Tallkvist. Swedish University of Agricultural Sciences (Uppsala, Sweden)

15:30 11.S05 **BROMIDE INTERFERENCE WITH IODINE METABOLISM IN THE RAT.** Stanislav Pavelka. Institute of Physiology, Czech Acad. Sci., Prague, and Faculty of Science, Masaryk University, Brno, Czech Republic (Prague 4, Czech Republic)

15:45 11.S06 **TRACE ELEMENT STATUS OF MILITARY PERSONNEL AFTER PRT.** Rima Naginiene<sup>1</sup>, Ramute Vaicaitiene<sup>2</sup>, Dale Baranauskienė<sup>1</sup>, Jolanta Gurauskienė<sup>2</sup>, Jadvyga Milieskiene<sup>2</sup>, Stasys Ryselis<sup>1</sup>, and Olegas Abdrachmanovas<sup>1</sup>. <sup>1</sup>Institute for Biomedical Research, Kaunas University of Medicine (Kaunas, Lithuania); <sup>2</sup>Military Medical Service of Lithuanian Armed Forces (Kaunas, Lithuania)

16:15 Delegate Coffee Break (OLYMPUS)

16:30 11.S07 **INDUCTION OF METALLOTHIONEIN MRNA IN THE CEREBRUM AND CEREBELLUM AFTER A LOW DOSE OF THYMEROSAL INJECTION.** Takeshi Minami Kinki University, School of Science & Engineering (Higashi-osaka, Japan)

16:45 11.S08 **SOD GENE EXPRESSION AND ACTIVITIES IN KIDNEY FROM RATS EXPOSED TO CADMIUM.** Xiang Cuiqin<sup>1</sup>, Mei Bing<sup>2</sup>, and Wu Zirong<sup>3</sup>. <sup>1</sup>Shanghai Center for Disease Control & Prevention (Shanghai, China); <sup>2</sup>East China Normal University (Shanghai, China); <sup>3</sup>East China Normal University (Shanghai, China)

### Minisymposium #9--APHRODITE

Chair: **Harold H. Sandstead**

Co-Chair: **Ananda Prasad**

### **The Role of Micronutrients (Iodine, Iron and Zinc) in Intellectual Development**

*UNESCO / Trace Element - Institute for UNESCO Symposium*

14:30 "Iodine and intellectual development : the role of ICCIDD in eliminating iodine deficiency disorders", **Michael B. Zimmermann**

14:55 "Zinc and cognitive performance", **Harold H. Sandstead**

15:20 "The role of micronutrients (iodine, iron and zinc) in intellectual development: WHO's position", **Bruno de Benoist**

15:45 "Ensuring Adequate Trace Mineral Intakes for Optimal Human Development - Moving from Knowledge to Action", **MG Venkatesh Mannar**

16:10 Delegate Coffee Break (OLYMPUS)

16:30 Discussion

18:00 Thursday posters removed from boards in OLYMPUS

18:00 Commercial exhibits dismantled

20:00 CRETA MARIS CONFERENCE CENTER, LEVEL 1

Reception and Banquet

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## FRIDAY MORNING, October 26

9:30-10:30 MINOS

Symposium H: **Zinc and the Common Cold**

*(ISTERH/NTES/HTES '07 acknowledges the generous support from the **GEORGE AND PATSY EBY FOUNDATION** )*

Chair: **Monica Nordberg**

*Purpose of Session:* Interest in the efficacy of zinc as a therapeutic treatment for the common cold has declined due to a series of negative trials. However, new research suggests that the chemical speciation by pH, dose response, type of salt and stability and chemistry of the carrier may explain variations in response. A proposed mechanism of action is discussed, the inhibition of intracellular adhesion molecule ICAM-1. ICAM1 (CD54) is expressed on cells of the immune system and is a binding receptor for Rhinovirus, the agent responsible for most respiratory viral infections. This provocative symposium by a world renowned zinc expert most likely will generate significant discussion.



9:30 "Zinc and the common cold: aspects of solution chemistry", **George Eby**

10:00 "Treatment of the common cold with zinc: effect on pro-inflammatory cytokine (soluble interleukin-1 receptor antagonist) and ICAM-1", **Ananda Prasad**

10:30 Closing Ceremony (MINOS)

**Sophie Ermidou-Pollet**, President, HTES

**Ole Andersen**, Representative, NTES

**Curtiss D. Hunt**, President, ISTERH

10:45-11:45 MINOS

**International Society for Trace Element Research in Humans (ISTERH) Business Meeting**

*Open to all Conference delegates; only ISTERH Members vote*

1. Approval of Agenda
2. President's Report (C. Hunt, USA)
3. Secretary's Report (H. Kodama, Japan)
  - a. Approval of Minutes of ISTERH Business Meeting held Nov 12, 2004 Bangkok, Thailand
4. Treasurer's Report (Acting: C. Hunt, USA)



5. Report of Crete Meeting (D. Klimis-Zacas, C. Hunt)
  6. Report of Awards Committee  
Raulin Award: G. Brewer, Chair  
  
Student Travel Awards: O. Andersen, Chair
  7. Business Items
  8. Report on the Journal of Trace Elements in Experimental Medicine (C. Hunt, USA)
  9. Report of the Nominating Committee (Harold Sandstead, Chair, USA)
  10. Election of Officers
  - 11 Remarks of the incoming President
  12. Other Business  
  
Closing of Conference
- 12:30PM Adjournment**



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