



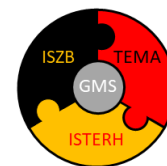
Aachen – Germany | Old imperial city in the heart of Europe

International Conference of Trace Elements and Minerals

Preliminary Program

On-site Meeting of 36th GMS, 7th ISZB, TEMA17 and 14th ISTERH

June 5 – 10, 2022



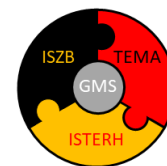
Detailed Daily Plan: Overview

Sunday June 5, 2022

17:00 – 18:30	Welcome Address
18:30 – 20:00	Welcome Reception <i>(finger food and drinks provided)</i>

Monday June 6, 2022

8:00 – 8:30	Poster Mounting 1
8:30 – 9:30	Keynote Lecture: Karin Broberg
9:30 – 10:00	Coffee Break
10:00 – 11:30	Parallel Symposia 1, 2 and 3
11:30 – 13:00	Lunch and ISZB Board Meeting
13:00 – 14:30	Parallel Symposia 4, 5 and 6
14:45 – 16:15	Parallel Symposia 7, 8 and 9
16:15 – 16:45	Coffee Break
16:45 – 17:45	Sponsor Session 1 and ISZB Business Meeting
17:45	Group Photo
18:00 – 20:00	Poster Session 1

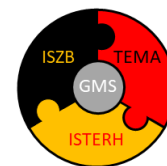


Tuesday June 7, 2022

8:00 – 8:30	Poster Mounting 2
8:30 – 9:30	Keynote Lecture: Laura Silvestri
9:45 – 11:15	Parallel Symposia 10, 11 and 12
11:15 – 11:45	Coffee Break
11:45 – 13:15	Parallel Symposia 13, 14 and 15
13:15 – 14:45	Lunch and GMS Board Meeting
14:45 – 16:15	Parallel Symposia 16, 17 and 18
16:15 – 16:45	Coffee Break
16:45 – 17:45	Sponsor Session 2 and GMS Business Meeting
17:45 – 18:15	Zumkley Price Announcement and Distinctions
18:15 – 20:15	Poster Session 2

Wednesday June 8, 2022

8:30 – 9:30	Keynote Lecture: Joseph Köhrle
9:45 – 11:15	Parallel Symposia 19, 20 and 21
11:15 – 11:45	Coffee Break
11:45 – 13:15	Parallel Symposia 22, 23, and 24
13:15 – 14:30	Lunch and TEMA Parental Committee Meeting
14:30	Social Afternoon

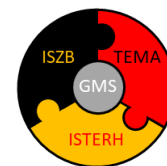


Thursday June 9, 2022

8:30 – 9:30	Keynote Lecture: Kathryn Taylor
9:45 – 11:15	Parallel Symposia 25, 26 and 27
11:15 – 11:45	Coffee Break
11:45 – 13:15	Parallel Symposia 28, 29, 30
13:15 – 14:30	Lunch and ISTERH Board Meeting
14:30 – 16:00	Parallel Symposia 31 and 32 and Young Investigators Session
16:00 – 16:45	ISTERH Business Meeting
18:00 – 19:00	Cathedral Concert
19:30	Conference Dinner and ISZB Award

Friday June 10, 2022

8:30 – 9:30	Keynote Lecture: Wei Zheng
9:30 – 10:00	Coffee Break
10:00 – 11:30	Workshop: Selected Abstract
11:30 – 13:00	Lunch
13:00 – 14:00	Closing Remarks



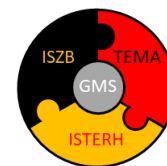
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Monday June 6, 2022

8:00 – 8:30	Poster Mounting 1
8:30 – 9:30	Keynote Lecture: Karin Broberg (LH 4) Manganese – the role of genetics and epigenetics
9:30 – 10:00	Coffee Break
10:00 – 11:30	Parallel Symposia 1, 2 and 3
	1 Sexual Dimorphism in Metal-Associated Diseases (LH 3) <i>Chair: Jamie Young</i>
	2 Physiology and pathophysiology of metal signaling (LH 4) <i>Chairs: Michal Hershinkel, Toshiyuki Fukada</i>
	3 Zinc and Silver, Chemical, Toxicological and Environmental Aspects of a Novel Antagonism (LH 1) <i>Chairs: Wojciech Bal, Artur Krężel</i>
11:30 – 13:00	Lunch and ISZB Board Meeting



3:00 – 14:30

Parallel Symposia 4, 5, 6 and 6r

- 4 Manganese-induced neurotoxicity:
Genetic, Epidemiologic, and Environmental Perspectives
(LH 5)
Chairs: Somshuvra Mukhopadhyay, Tomas Guilarte
- 5 Zinc, the Intestinal Mucosa and Inflammation (LH 4)
Chairs: Christer Hogstrand, Shannon Kelleher
- 6 ICTEM selection (LH3)
Chair: tba
- 6r From Rock to Food:
The Fate of Minerals in Functional Agriculture (LH 1 remote)
Chair: Xuebin Yin

14:45 – 16:15

Parallel Symposia 7, 8 and 9

- 7 Metal Exposures throughout the Life Course:
Epidemiological, Toxicological, and Exposure Challenges
(LH 3)
Chairs: Aaron Specht, John Jr Wise
- 8 The identification and development of novel biomarkers
of zinc physiological status, Part 1 (LH 4)
Chair: Elad Tako
- 9 Trace Age (LH 4)
Chair: Tanja Schwerdtle

16:15 – 16: 45

Coffee Break

16:45 – 17:45

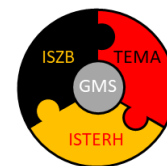
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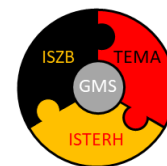
Group Photo

18:00 – 20:00

Poster Session 1

**Tuesday June 7, 2022**

- 8:00 – 8:30 Poster Mounting 2
- 8:30 – 9:30 Keynote Lecture: Laura Silvestri (LH 4)**
- Managing the dual nature of iron to preserve health: from basic mechanisms to therapeutic approaches
- 9:45 – 11:15 Parallel Symposia 10, 11 and 12**
- 10 When Physicists Meet Neuroscientists: All that Metals (LH 3)
Chairs: Xuemei Huang, Linda Nie
- 11 TEMA Domestic and Experimental Animal Session, Part 1 (LH 1)
Chair: Xingen Lei
- 12 High-End Trace Element detection (LH 1)
Chairs: Esther Humann-Ziehank, Dirk Schaumlöffel
- 11:15 – 11:45 Coffee Break
- 11:45 – 13:15 Parallel Symposia 13, 14 and 15**
- 13 Biomarkers of Zinc Status (LH 3)
Chairs: David Fleming
- 14 Zinc in Cardiovascular Disease (LH 4)
Chairs: Belma Turan, Alan Stewart
- 15 Extracurricular activities of zinc transporters (LH 1)
Chairs: Arie Moran, Taiho Kambe
- 13:15 – 14:45 Lunch (and GMS Board Meeting)



14:45 – 16:15

Parallel Symposia 16, 17 and 18

16 Role of the natural brain metal-binder neuromelanin in aging and neurodegenerative diseases (LH 4)

Chair: Tim Hofer

17 The identification and development of novel biomarkers of zinc physiological status, Part 2 (LH 3)

Chair: Elad Tako

18 Trace Elements and the CNS (LH 1)

Chair: Imre Lengyel

16:15 – 16:45

Coffee Break

16:45 – 17:45

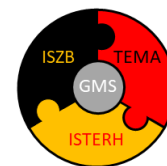
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17:45 – 18:15

Zumkley Price Announcement and Distinctions

18:15 – 20:15

Poster Session 2



Wednesday June 8, 2022

8:30 – 9:30

Keynote Lecture: Joseph Köhrle (LH 4)

Selenium – an essential trace element for health acting via selenoproteins throughout human life.

Genetics, prevention, treatment

9:45 – 11:15

Parallel Symposia 19, 20 and 21

19 Trace Elements in Etiology of Alzheimer's and Parkinson's Diseases (LH 1)

Chair: Yansheng Du

20 Trace Elements in Metabolic Syndrome (LH 3)

Chairs: Xingen Lei

21 Zinc Buffering Systems (LH 4)

Chair: Claudia Blindauer

11:15 – 11:45

Coffee Break

11:45 – 13:15

Parallel Symposia 22, 23, and 24

22 Manganese Neurotoxicity: From Bone to Brain (LH 1)

Chairs: Roberto Lucchini, Michael Aschner

23 Zinc Ion Cybernetics: Integrating Cellular Zinc Homeostasis (LH 3)

Chairs: Wolfgang Maret, Irina Korichneva

24 Metal Ions and Immunity, Part 1 (LH 4)

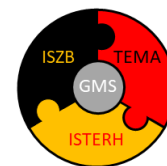
Chairs: Inga Weßels, Daren Knoell

13:15 – 14:30

Lunch (and TEMA Parental Committee Meeting)

14:30

Social Afternoon

**Thursday June 9, 2022****8:30 – 9:30****Keynote Lecture: Kathryn M Taylor (LH 4)**

The LIV-1 family of zinc transporters: Navigating a long and winding road

9:45 – 11:15**Parallel Symposia 25, 26 and 27**

25 Metals in Neurodegeneration (LH 3)

Chair: Per Roos

26 Metal Ions and Immunity, Part 2 (LH 4)

Chairs: Lothar Rink

27 TEMA Domestic and Experimental Animal Session, Part 2 (LH 1)

Chair: Xingen Lei

11:15 – 11:45

Coffee Break

11:45 – 13:15**Parallel Symposia 28, 29, 30**

28 Cadmium and its effects on human health and disease: Preclinical and clinical insights (LH 1)

Chairs: Lu Cai, Young-Mi Go

29 Metal Ions in Host Defence (LH 4)

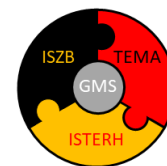
Chair: Matt Sweet

30 Trace Elements in Hematology and Cancer (LH 4)

Chair: Irina Korichneva, Sandeep Prabhu

13:15 – 14:30

Lunch (and ISTERH Board Meeting)



14:30 – 16:00 **Parallel Symposia 31 and 32 and Young Investigators Session**

31 Environmental Concerns of Trace Elements in Health and Diseases (LH 3)

Chair: Denise Mafra, John Wise Sr.

32 TEMA's Highlights (LH 1)

Chair: Manju Reddy

33 ISZB Young Investigator Symposium (LH 4)

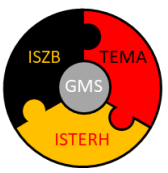
Chairs: Anna Kocyla, Daniel Brugger

16:00 – 16:45 **ISTERH Business Meeting**

18:00 – 19:00 **Cathedral Concert**

19:30 **Conference Dinner and**

ISZB/Frederickson-Prize: Awardee Dr. Kathryn M Taylor



Friday June 10, 2022

8:30 – 9:30

Keynote Lecture: Wei Zheng (LH 4)

Imbalanced Copper Homeostasis in Brain Disorders:

Olfactory Dysfunction and Age-dependent Clearance Disorder
at the Blood-Brain Interfaces

9:30 – 10:00

Coffee Break

10:00 – 11:30

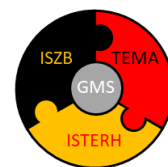
Workshop: Selected Abstracts

11:30 – 13:00

Lunch

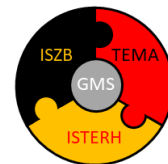
13:00 – 14:00

Closing Remarks

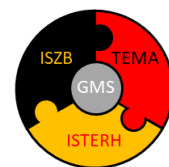


Symposia

Detailed Daily Plan: Overview	2
Detailed Daily Plan.....	5
Symposia	13
Monday, June 6 2022	15
1 Sexual Dimorphism in Metal-Associated Diseases.....	15
2 Physiology and pathophysiology of metal signaling	15
3 Zinc and Silver, Chemical, Toxicological and Environmental Aspects of a Novel Antagonism..	16
4 Manganese-induced neurotoxicity:	16
Genetic, Epidemiologic, and Environmental Perspectives.....	16
5 Zinc, the Intestinal Mucosa and Inflammation.....	17
6 6 ICTEM selection	17
6.r From Rock to Food:.....	18
The Fate of Minerals in Functional Agriculture	18
7 Metal Exposures throughout the Life Course: Epidemiological, Toxicological, and Exposure Challenges	18
8 The identification and development of novel biomarkers of zinc physiological status, Part 1	19
9 Trace Age.....	19
Tuesday, June 7 2022	20
10 When Physicists Meet Neuroscientists: All that Metals.....	20
11 TEMA Domestic and Experimental Animal Session, Part 1	20
12 High-End Trace Element detection.....	21
13 Biomarkers of Zinc Status.....	21
14 Zinc in Cardiovascular Disease.....	22
15 Extracurricular activities of zinc transporters	22
16 Role of the natural brain metal-binder neuromelanin in aging and neurodegenerative diseases	23
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Part 2	23
18 Trace Elements and the CNS	24
Wednesday June 8, 2022.....	25
19 Trace Elements in Etiology of Alzheimer’s and Parkinson’s Diseases	25
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24	Metal Ions and Immunity, Part 1.....	27
Thursday June 9, 2022.....		28
25	Metals in Neurodegeneration	28
26	Metal Ions and Immunity, Part 2.....	28
27	TEMA Domestic and Experimental Animal Session, Part 2	29
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29	Metal Ions in Host Defense	30
30	Trace Elements in Hematology and Cancer.....	30
31	Environmental Concerns of Trace Elements in Health and Diseases	31
32	TEMA's Highlights.....	31
33	ISZB Young Investigator Symposium	32



Session Overview

Monday, June 6 2022

1 Sexual Dimorphism in Metal-Associated Diseases

10:00 – 11:30 am, Lecture Hall 3

Chair: Jamie Young

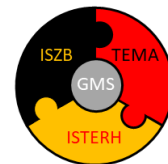
Jamie Young Louisville, USA	Whole-life, low-dose cadmium exposure exacerbates diet-induced non-alcoholic fatty liver disease in male, but not female mice
Aisha Dickerson Baltimore, USA	Potential Sex Differences Relative to Parental Metal Occupation Exposures and Risk of Autism Spectrum Disorder in Offspring
Koren Mann Montreal, Canada	Early-life Arsenic Exposures and Sex-specific differences in development of atherosclerosis in mice.
Jiancheng Xu Jilin, China	Sex differences in the correlation between serum trace elements and clinical biomedical indexes of type 1 diabetes

2 Physiology and pathophysiology of metal signaling

10:00 – 11:30 am, Lecture Hall 4

Chairs: Michal Hershfinkel, Toshiyuki Fukada

Moon-Suhn Ryu Seoul, South Korea	Zinc and Its Transporter ZIP10 in Erythroid Differentiation and Heme Metabolism (<i>remote</i>)
Khanh Le Chung-Li, Taiwan	Prediction of metal binding sites from protein sequence: an explainable machine learning model
Ashenafi H. Betrie Melbourne, Australia	A role for zinc in vascular physiology and pathophysiology
Milos Bogdanovic Be'er Sheva, Israel	ZIP3, distinctly expressed on mossy fibers, is responsible for CA3 neuronal degeneration following seizure



3 Zinc and Silver, Chemical, Toxicological and Environmental Aspects of a Novel Antagonism

10:00 – 11:30 am, Lecture Hall 1

Chairs: Wojciech Bal, Artur Krężel

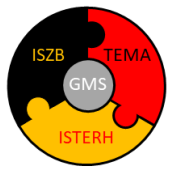
Harley Betts Paris, France	Investigating the chemistry of silver in biological systems <i>(remote)</i>
Hugh Harris Adelaide, Australia	
Aurelien Deniaud Grenoble, France	Nuclear translocation of silver ions upon silver nanoparticle exposure lead to nuclear receptor impairment
Artur Krężel Wroclaw, Poland	Zinc to silver swap in zinc finger domains disrupts their native structures and DNA recognition
Wojciech Bal Warsaw, Poland	Silver interference with essential metals in cirrhotic liver

4 Manganese-induced neurotoxicity: Genetic, Epidemiologic, and Environmental Perspectives

1:00 - 2:30 pm, Lecture Hall 1

Chairs: Somshuvra Mukhopadhyay, Tomas Guilarte

Somshuvra Mukhopadhyay Austin, USA	Regulation of Mn homeostasis and neurotoxicity by SLC30A10 <i>(remote)</i>
Tomas Guilarte Miami, USA	Slc39a14 Knockout Mice: A Genetic Model to Study Manganese-Induced Dystonia-Parkinsonism.
Karin Tuschl London, UK	The role of manganese in brain physiology and disease
Donald Smith Santa Cruz, USA	Understanding Manganese Developmental Toxicity and Efficacy of Therapeutic Intervention



5 Zinc, the Intestinal Mucosa and Inflammation

1:00 - 2:30 pm, Lecture Hall 4

Chairs: Christer Hogstrand, Shannon Kelleher

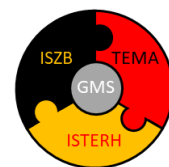
Christer Hogstrand London, UK	The aryl hydrocarbon receptor is a regulator of zinc uptake in the intestinal epithelium and cooperates with zinc to improve barrier function
Shannon L. Kelleher Hershey, USA	Zinc and mucosal inflammation: Novel roles for ZnT2
Steven J McElroy Iowa, USA	The importance of Zinc-rich Paneth cells in the pathophysiology of necrotizing enterocolitis
Emily Strachan London, UK	Sex, guts and tumours

6 ICTEM selection

2:45 – 4.15 pm, Lecture Hall 3

Chair: Dianne Ford

Dianne Ford, Newcastle upon Tyne, UK	The potential contribution of variability in zinc supply to ribosome heterogeneity and function
Andrea Hartwig Karlsruhe, Germany	Zinc signaling involved in PARP-1 activation and genomic stability
Richard Thompson	Tba
Robert A. Colvin Athens, USA	Heterogeneity of metallome of single pancreatic beta-cells as detected by synchrotron X-ray fluorescence



6.r From Rock to Food:

The Fate of Minerals in Functional Agriculture (remote)

2:45 – 4.15 pm, Lecture Hall 1

Chair: Xuebin Yin

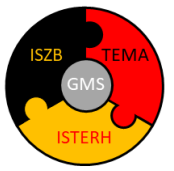
Yongguan Zhu Beijing/Xiamen, China	The spatial distribution of Se in the global rice (remote)
Xuebin Yin Suzhou/Hefei, China	Mineral footprints: From rock to foods
Zhangmin Wang Suzhou, China	A case study about selenium intake in Enshi, China
Rochana Tangkoonboribon Khlong Luang, Thailand	Research progress of selenium rich functional agricultural in Thailand
Jiaping Song China	A decrease of soil nematode abundances with increased soil Se levels in a pot experiment under selenite biofortification

7 Metal Exposures throughout the Life Course: Epidemiological, Toxicological, and Exposure Challenges

2:45 – 4.15 pm, Lecture Hall 3

Chairs: Aaron Specht, John Jr Wise

Aaron Specht West Lafayette, USA	2D Benchtop X-ray Fluorescence Approaches to Exposure Assessment
John Jr Wise Louisville, USA	Heavy Metals Induce Brain Aging: Investigating Hexavalent Chromium [Cr(VI)] as a Neurotoxicant and a Gerontogen
Erin Haynes Lexington, USA	Ambient Manganese Exposure and Pediatric Neurodevelopment
Christian Hoover Boston, USA	Firearms as a Primary Exposure Source of Lead in Children
Ana Pejovic-Milic Toronto, Canada	Measuring Bone Tungsten: A Visibility Study



8 The identification and development of novel biomarkers of zinc physiological status, Part 1

2:45 – 4.15 pm, Lecture Hall 4

Chair: Elad Tako

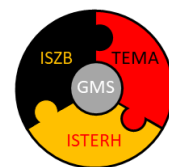
Elad Tako Ithaca, USA	The Linoleic Acid: Dihomo- γ -Linolenic Acid Ratio (LA:DGLA)-An Emerging Biomarker of Zn Status
Omry Koren Tel Aviv, Israel	Zinc deficiency and the intestinal microbiome
Tolunay Beker Aydemir New York, USA	Zinc metabolism in GI-related disorders: Implications for potential biomarkers
Alex Johnson Melbourne, Australia	Improving food security with zinc enriched cereal, assesment and implemetaion
Emily Ho Corvallis, USA	Association between zinc absorption, physiological status and age (<i>remote</i>)

9 Trace Age

9:45 – 11:15 am, Lecture Hall 4

Chair: Tanja Schwerdtle

Julia Bornhorst Wuppertal, Germany	Interaction of zinc and manganese homeostasis in aging organisms
Wen-Hsing Cheng Mississippi State, USA	Selenium Regulation of Aging in Telomere Humanized Mice
Paul Copeland Piscataway, USA	The hepatotoxic drugs benzbromarone and sorafenib are potent inhibitors of selenoprotein synthesis that target the selenocysteine incorporation machinery (<i>remote</i>)
Anna Kipp Jena, Germany	Copper blocks hepatic Selenoprotein P release



Tuesday, June 7 2022

10 When Physicists Meet Neuroscientists: All that Metals

9:45 – 11:15 am, Lecture Hall 3

Chairs: Xuemei Huang, Linda Nie

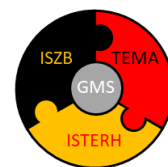
Xuemei Huang State College, USA	Understanding the effects of essential and non-essential metals on brain structure and function: effects of low level welding fume exposure in "asymptomatic" workers(<i>remote</i>)
Linda Nie Weat Lafayette, USA	Distribution Pb and Se in Mouse Brain Following Subchronic Pb Exposure by Using Synchrotron X-ray Fluorescence
Brad Racette Phoenix, USA	Neurologic Health Effects of Chronic Environmental Mn Exposure in Adults
Anumantha Kanthasamy Athens, USA	Exosomes as Mediators of Manganese-Induced Neuroinflammation and Neurotoxicity: Translational Implications for Biomarker Discovery in Parkinsonism
Tim Salditt Göttingen, Germany	Multimodal and X-ray Imaging of Human Brain Tissue

11 TEMA Domestic and Experimental Animal Session, Part 1

9:45 – 11:15 am, Lecture Hall 1

Chair: Xingen Lei

Karen Wedekind St. Charles, USA	Use of serum biomarkers to assess lameness and efficacy of chelated trace minerals (Zn/Cu/Mn) in reducing gait score in finisher pigs
Mustafa Naziroğlu Isparta, Turkey	Selenium diminished chemotherapeutic agents-induced mitochondrial oxidative stress and neuropathic pain via the inhibition of TRPM2 (<i>remote</i>)
Mélissa Duplessis Québec, Canada	The importance of a holistic approach to assess trace element feeding practices in dairy herds
Peng Ji Davis, USA	Research on early-life iron imbalance in a piglet model



12 High-End Trace Element detection

1:00 - 2:30 pm, Lecture Hall 1

Chairs: Esther Humann-Ziehank, Dirk Schaumlöffel

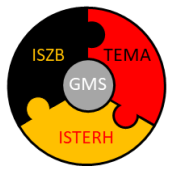
Tatjana Taubitz Belvaux, Luxemburg	Multimodal imaging of metallic nanoparticles for high resolution nanoanalytics in biological systems
Esther Humann-Ziehank Burgdorf, Germany	Pre-analytic errors during specimen collection – examples for effects on zinc concentrations
Bernhard Michalke München, Germany	Combination of elemental speciation techniques proof changes in metallome and metabolome in neurodegenerative condition
Dirk Schaumlöffel Pau, France	High-end imaging techniques for the analysis of trace element distribution in cells and tissues

13 Biomarkers of Zinc Status

11:45 am – 1:15 pm, Lecture Hall 3

Chair: David Fleming

David Fleming Sackville, Canada	Assessment of X-ray fluorescence capabilities for nail and hair through zinc measurement in reference materials
Nicola Lowe Preston, UK	The response of DNA fragmentation to moderate increases in zinc intake from biofortified wheat: a cluster randomized controlled trial
Andrew Hall Davis, USA	Fatty acid metabolic response to changes in zinc intake: data from BiZiFED2
Louise Brough Auckland, New Zealand	Zinc intakes and status among breastfeeding women and their infants (<i>remote</i>)
Christopher J Frederickson Galveston, USA	Zinc concentration in hair or nails can be a reliable indicator of past zinc nutrition, but many small procedural details are <i>critical</i>



14 Zinc in Cardiovascular Disease

11:45 am – 1:15 pm, Lecture Hall 4

Chairs: Belma Turan, Alan Stewart

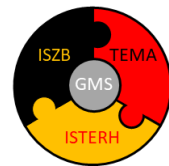
Belma Turan Ankara, Turkey	New approaches to the roles of ZnT7 and ZnT8 in insulin resistant cardiomyocytes (<i>remote</i>)
Alan Stewart St. Andrews, UK	Fatty acids modulate zinc-dependent coagulation through albumin binding in type 2 diabetes
Erkan Tuncay Ankara, Turkey	Overexpression of ZnT6 plays an important role in mitochondrial dysfunction in hyperglycemic cardiomyocytes (<i>remote</i>)
Amy Dorward St. Andrews, UK	Zinc is at the heart of sarcoplasmic reticulum calcium leak under physiological conditions
Richard D. Rainbow Liverpool, UK	The mystery of hyperglycaemia-induced cardiac pro-arrhythmicity: is zinc our mechanistic link?

15 Extracurricular activities of zinc transporters

11:45 am – 1:15 pm, Lecture Hall 1

Chairs: Arie Moran, Taiho Kambe

Taiho Kambe Kyoto, Japan	What happens if zinc supply to the early secretory pathway mediated by ZNT5-6 and ZNT7 is impaired? (<i>remote</i>)
Bing Zhou Beijing, China	A ZIP homologue functions in the iron homeostasis of <i>D. melanogaster</i>
Raz Zarivach Be'er Sheva, Israel	Structural studies of eukaryotic and prokaryotic Cation Diffusion Facilitator shed light on their activation and regulation differences
Arie Moran Be'er Sheva, Israel	The secret flirt of ZnT-1 with the calcium channel β subunit
Yukina Nishito Kyoto, Japan	Sophisticate responses of ZNT1 and MT to alteration of ZIP protein expression (<i>remote</i>)



16 Role of the natural brain metal-binder neuromelanin in aging and neurodegenerative diseases

2:45 – 4:15 pm, Lecture Hall 4

Chair: Tim Hofer

Tim Hofer Oslo, Norway	Xenobiotic-neuromelanin interactions and models to study toxicity
Luigi Zecca Rome, Italy	Neuromelanin-metal complexes in brain aging and Parkinson disease
Harald E. Möller Leipzig, Germany	Investigation of Contrast Mechanisms for Neuromelanin-Sensitive MRI
Antje Biesemeier Belvaux, Luxembourg	Analysis of neuromelanins and metals involved in neurodegeneration of Parkinson's disease using novel high resolution secondary ion mass spectrometry
Jake Brooks Warwick, UK	Label-free, in-situ characterization of neuromelanin and associated metal ions by synchrotron x-ray spectromicroscopy

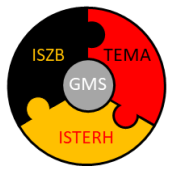
17 The identification and development of novel biomarkers of zinc physiological status,

Part 2

2:45 – 4:15 pm, Lecture Hall 3

Chair: Elad Tako

Jacquelyn Cheng New York, USA	Development of the Zinc Status Index.
Diego Moretti Zurich, Switzerland	Assessing the efficacy of nutritional zinc interventions with serum zinc
Marija Knez Belgrad, Serbia	FADS1 and FADS2 as biomarkers of Zn status – a systematic review and meta-analysis is for the talk (<i>remote</i>)
Gretchen Mahler New York, USA	Modeling Zinc Transport with In Vitro and Animal Models of the Human Gut: The Role of Food Additive Exposure

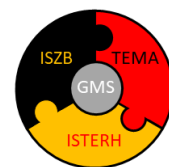


18 Trace Elements and the CNS

2:45 – 4:15 pm, Lecture Hall 1

Chair: Imre Lengyel

Jian-Hong Zhu Wenzhou, China	Novel functions of selenoproteins in Parkinson's disease <i>(remote)</i>
Imre Lengyel Belfast, UK	Multi omics and single cell sequencing approaches for deciphering zinc biology in the eye
Tolunay B. Aydemir New York, USA	Gut to brain: Role of SLC39A14/ZIP14-Mediated Manganese Transport
Jane M. Flinn Fairfax, USA	Excess zinc causes impairments in behavior and brain function in mice containing both amyloid and tau to model Alzheimer's disease



Wednesday June 8, 2022

19 Trace Elements in Etiology of Alzheimer's and Parkinson's Diseases

9:45 – 11:15 am, Lecture Hall 1

Chair: Yansheng Du

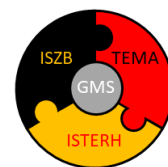
Yansheng Du Indianapolis, USA	Lead exposure and the etiology of Alzheimer disease via cerebral amyloid angiopathy: Evidence from animal studies
Uzay Emir West Lafayette, USA	Developing a novel MRI technique to study brain myelination and demyelination in neurodegenerative diseases
Xiaoli Shen Qingdao, China	Altered clearance of beta-amyloid from the cerebrospinal fluid following subchronic lead exposure in rats: Implication in cerebral amyloid angiopathy
Paul Territo Indianapolis, USA	The etiology of chronic lead induced alterations in the blood brain barrier system via DCE-CT

20 Trace Elements in Metabolic Syndrome

9:45 – 11:15 am, Lecture Hall 3

Chairs: Xingen Lei

Yoshiro Saito Sendai, Japan	Selenoprotein P as a significant regulator of redox and energy metabolism: the involvement of selenium metabolism (<i>remote</i>)
Xingen Lei New York, USA	A new cascade of GPX1/REG2/CaV1.2 in the augmented insulin secretion induced by GPX1 overproduction
Lucia Seale Hawaii, USA	Effects of selenium supplementation in the selenocysteine lyase knockout mouse
Lucia Pedrosa Natal, Brazil	Dietary intake of iron, copper, and selenium are associated with HDL-c and blood glucose alterations in patients with metabolic syndrome.



21 Zinc Buffering Systems

9:45 – 11:15 am, Lecture Hall 4

Chair: Claudia Blindauer

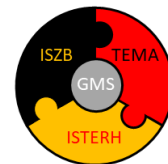
Claudia Blindauer Warwick, UK	Free fatty acid-modulated plasma zinc speciation affects cellular zinc uptake
Hajo Haase Berlin, Germany	Implications of extracellular zinc buffering: how meaningful are in vitro studies
Christoph Fahrni Atlanta, USA	Tracing Biological Zinc with Fluorescent Probes: Challenges and Opportunities
Wolfgang Maret London, UK	Zinc buffering and muffling in human Zn ²⁺ secreting cells
Nigel Robinson Durham, UK	How cells help proteins to acquire, or avoid, zinc versus other metals: The free energies of metalation (<i>remote</i>)

22 Manganese Neurotoxicity: From Bone to Brain

11:45 am – 1:15 pm, Lecture Hall 1

Chairs: Roberto Lucchini

Roberto Lucchini Miami, USA	Diffuse Brain Deposition of Beta-Amyloid among Italian Ferroalloy Workers
Ulrike Dydak West Lafayette, USA	Quantifying brain manganese levels by MRI: What is considered harmful?
Ellen Wells West Lafayette, USA	Bone manganese as a biomarker of manganese exposure: summary and future research needs
Pan Chen New York, USA	Role of BTBD9 in manganese-induced oxidative stress and neurotoxicity



23 Zinc Ion Cybernetics: Integrating Cellular Zinc Homeostasis

11:45 am – 1:15 pm, Lecture Hall 3

Chairs: Wolfgang Maret, Irina Korichneva

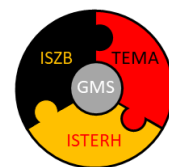
Zui Pan Arlington, USA	Identification of an unrecognized novel role of SMIT1 in zinc uptake
Vladimir Chubanov München, Germany	Regulatory mechanisms and pharmacological profiles of TRPM7
Nicholas Pugh Cambridge, UK	The role of zinc signals in platelet activation during thrombosis and haemostasis
Samantha Pitt St. Andrews, UK	Does Zn ²⁺ -mediated sarcoplasmic reticulum Ca ²⁺ leak drive cardiac dysfunction?

24 Metal Ions and Immunity, Part 1

11:45 am – 1:15 pm, Lecture Hall 4

Chairs: Inga Weßels, Daren Knoell

Jeanette Maier Italy	The role of magnesium in inflammation: preclinical and clinical evidence (<i>remote</i>)
Håkan Eriksson Malmö, Sweden	Aluminium adjuvants in vaccines - a way to modulate the immune response
Girish Kirimanjeswara State College, USA	Contribution of Selenoproteins to B cell homeostasis
Fudi Wang Hangzhou, China	The SLC39 and SLC30 Transporters: Zinc, Iron or Manganese? (<i>remote</i>)



Thursday June 9, 2022

25 Metals in Neurodegeneration

9:45 – 11:15 am, Lecture Hall 3

Chair: Per Roos

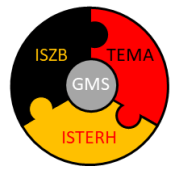
Per Roos Stockholm, Sweden	Geochemical exposure in neurodegenerative disease
Jyri Jarvet Stockholm, Sweden	The role of redox metals in protein aggregation in neurodegenerative disorders
Julia Smirnova Tallinn, Estonia	Metal distribution between protein peaks in ALS cerebrospinal fluid and blood plasma
Lassi Koski Stockholm, Sweden	Metal ratios in cerebrospinal fluid and blood plasma from amyotrophic lateral sclerosis patients
Aida Kamalian Stockholm, Sweden	Metal concentrations in cerebrospinal fluid, blood, serum, plasma, hair and nails in amyotrophic lateral sclerosis - a systematic review and metanalysis

26 Metal Ions and Immunity, Part 2

9:45 – 11:15 am, Lecture Hall 4

Chairs: Lothar Rink

Inga Weßels Aachen, Germany	Zinc in Inflammatory Reactions
Peter R. Hoffmann Honolulu, USA	Selenoproteins as regulators of T cell proliferation, differentiation, and metabolism (<i>remote</i>)
Daren L. Kneoll Omaha, USA	The adverse impact of Cadmium on innate immune function
Günter Weiss Innsbruck, Austria	Iron at the interface of immunity and infection (<i>remote</i>)
Markus Kleinewieffeld Hasselt, Belgium	The ionic microenvironment as a modulator of the immune cell balance and disease



27 TEMA Domestic and Experimental Animal Session, Part 2

9:45 – 11:15 am, Lecture Hall 1

Chair: Xingen Lei

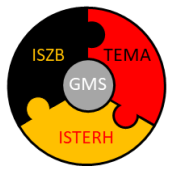
Lvhui Sun Hubei, China	Detoxification effects of selenium against aflatoxin B1-induced toxicity in chickens (<i>remote</i>)
Margaret P Rayman Guildford, UK	Nutritional inadequacy of dietary minerals from a diet with no animal foods
Juliana Ranches Oregon, USA	Trace mineral supplementation for beef calves prior to weaning
Xingen Lei Ithaca, USA	Comparative functional genomics of selenoproteins between rodents and food animals
Mohammed Amine Hachemi Barcelona, Spain	Hydroxy-Selenomethionine induces the expression of selenoproteins, protects against oxidative stress and enhances the phagocytic capacity of macrophages stimulated with LPS.

28 Cadmium and its effects on human health and disease: Preclinical and clinical insights

11:45 am – 1:15 pm, Lecture Hall 1

Chairs: Lu Cai, Young-Mi Go

Lu Cai Louisville, USA	Maternal and early-life exposure to cadmium increase offspring susceptibility to diet-induced liver cancer
Young-Mi Go Atlanta, USA	Low dose cadmium-potentiated metabolic reprogramming in lung inflammation
Jiapeng Huang Louisville, USA	Cadmium and Pulmonary Arterial Hypertension (<i>remote</i>)
Jin-Yong Lee Aichi, Japan	Molecular Mechanisms of cadmium-induced renal toxicity and its modifying factors
Chendil Damodaran Kingsville, USA	Cadmium induced Prostate Carcinogenesis (<i>remote</i>)



29 Metal Ions in Host Defense

11:45 am – 1:15 pm, Lecture Hall 3

Chair: Matthew J. Sweet

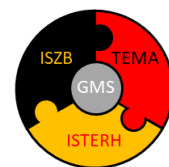
Toshiyuki Fukada Tokushima, Japan	A critical role of ZIP10 in lymphocytes and skin barrier functions (<i>remote</i>)
Ruben Vicente Garcia Barcelona, Spain	Zinc nutritional status and immune response upon SARS-CoV2 infection
Ronan Kapetanovic Basel, Switzerland	A chink in the armor: Zinc poisoning and bacterial membrane targeting as a promising two-pronged antimicrobial strategy
Matthew J. Sweet Brisbane, Australia	Macrophage-mediated zinc toxicity as an antimicrobial weapon of the innate immune system
Henrike J. Fischer Aachen, Germany	Fine tuning of T cell mediated immune responses by zinc

30 Trace Elements in Hematology and Cancer

11:45 am – 1:15 pm, Lecture Hall 4

Chairs: Irina Korichneva, Sandeep Prabhu

Sandeep Prabhu Pennsylvania, USA	Interrogation of the Role of Gpr44 in Acute Myeloid Leukemia
Elias Arner Stockholm, Sweden	Selenium dependent control of cell function through the thioredoxin system (<i>remote</i>)
Leigh Ackland Melbourne, Australia	Zinc transporters and cancer (<i>remote</i>)
Irina Korichneva Amiens, France	Intramolecular interactions in the Trpm7 cationic channel determine zinc permeability and functional implications in invasive breast cancer



31 Environmental Concerns of Trace Elements in Health and Diseases

2:30 – 4:00 pm, Lecture Hall 3

Chair: Denise Mafra, John Wise Sr.

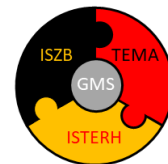
John Wise Sr. Louisville, USA	The mechanisms of chromium carcinogenesis: A One Environmental Health perspective
Emma Martínez-López Murcia, Spain	Mercury in multiple brain regions of dolphin from Mediterranean Sea and its implications on neurochemical biomarkers
Arthi Kanthasamy Athens, USA	Exosomes as Mediators of Manganese-Induced Neuroinflammation and Neurotoxicity: Translational Implications for Biomarker Discovery in Parkinsonism
Jennifer Freeman West Lafayette, USA	Embryonic lead exposure and sex-specific Alzheimer's disease associated alterations in the zebrafish adult brain
Denise Mafra Rio de Janeiro, Brazil	Could oral iron supplementation cause disturbances in the gut microbiota?

32 TEMA's Highlights

2:30 – 4:00 pm, Lecture Hall 1

Chair: Manju Reddy

Manju B. Reddy Ames, USA	Fortification and Supplementation Studies with <i>Aspergillus Oryzae</i> (Koji) Iron (<i>remote</i>)
Robert J. Cousins Gainesville, USA	Intestinal-specific Zip14 (Slc39a14) ablation dysregulates tight junction protein expression and inflammatory genes (<i>remote</i>)
John Beattie	tba
Fanis Missirlis Cinvestav, Mexico	Is kynurenine a hormone regulating systemic zinc homeostasis?



33 ISZB Young Investigator Symposium

2:30 – 4:00 pm, Lecture Hall 4

Chairs: Anna Kocyla, Daniel Brugger

Michael Stiboller Potsdam, Germany	Analytical aspects for the analysis of arsenolipids in seafood
Anna Kocyla Wroclaw, Poland	What drives the zinc-dependent assembly of CD4/CD8 coreceptor and Lck tyrosine kinase (<i>remote</i>)
Solveigh Koeberle Jena, Germany	Selenium in NRF2 dependent redox signaling
Iurii Orlov Amiens, France	Copper transport analysis by intracellular imaging and its functional role in human primary smooth muscle cells
Wakana Ohashi Tokyo, JapanMa	The intrinsic roles of zinc homeostasis in intestinal development and functions (<i>remote</i>)