15:30 - 16:30

**Plenary Lecture**  
(50 min Presentation + 10 min Discussion)

**Chairperson:** Yoshitsugu Shiro  
(Graduate School of Science, University of Hyogo, Japan)

**PL**  
Au nanoparticle-based surface-enhanced Raman imaging reveals cystathionine-gamma-lyase-derived polysulfide overproduction in cancer-associated fibroblasts as a determinant of post-operative overall prognosis

Makoto Suematsu  
Keio University School of Medicine

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16:30 -

**Coffee Break**
The 8th International Symposium on Metallomics
ISM-8
July 11, 2022 (Mon) – July 14, 2022 (Thu)

*: Online presentation

July 12 (Tue), Room A (1F)

8:45 -

Opening Remarks
Yasumitsu Ogra (Chair, ISM-8 Executive Committee/
Graduate School of Pharmaceutical Sciences, Chiba University)

9:00 - 11:00

Specialty Session 1 (Keynote Lecture) (25 min Presentation + 5 min Discussion)
Chairpersons: Yoshiaki Furukawa (Department of Chemistry, Keio University, Japan)
Junpei Takano (Department of Agricultural Biology, Graduate School of Agriculture, Osaka Metropolitan University, Japan)

SS1-1*/KL-1* Regulation of Zinc Homeostasis in Rice
9:00 - 9:30
Luqing Zheng, Shuai Mu, Shubao Hu, Binbin Du
Nanjing Agricultural University

(17 min Presentation + 3 min Discussion)

SS1-2 Boron Transport and Sensing in Arabidopsis
9:30 - 9:50
Junpei Takano
Department of Agricultural Biology, Graduate School of Agriculture, Osaka Metropolitan University

SS1-3 Alterations in renal cadmium distribution and phosphate reabsorption by the administration of cadmium-metallothionein in mice
9:50 - 10:10
Hitomi Fujishiro¹, Seiichiro Himeno²
¹Faculty of Pharmaceutical Sciences, Tokushima Bunri University, ²School of Pharmacy, Showa University

SS1-4 ZIP13-iron axis is a new regulatory mechanism for lipolysis
10:10 - 10:30
Ayako Fukunaka¹, Toru Kimura¹, Daisuke Saito¹, Toshiyuki Fukada¹, Hirotaka Watada¹, Yoshio Fujitani¹
¹Institute for Molecular & Cellular Regulation, Gunma University, ²Kyorin University School of Medicine, ³Juntendo University Graduate School of Medicine, ⁴Tokushima Bunri University

SS1-5 Sophisticated expression responses of ZNT1 and MT to expression alteration of ZIPs: Dissecting the mechanism underlying the control of zinc homeostasis
10:30 - 10:50
Taiho Kambe
Division of Integrated Life Science, Graduate School of Biostudies, Kyoto University

Session Closing
10:50 - 11:00

11:00 -

Coffee Break
**The 8th International Symposium on Metallomics**  
**ISM-8**  
**July 11, 2022 (Mon) – July 14, 2022 (Thu)**  
*: Online presentation

**Saturday, July 12 (Tue), Room A (1F)**

**11:10 - 11:40**  
**Keynote Lecture 2**  
(25 min Presentation + 5 min Discussion)  
Chairpersons: Taiho Kambe (Division of Integrated Life Science, Graduate School of Biostudies, Kyoto University, Japan)  
Lara Massai (Department of Chemistry, University of Florence, Italy)  

**KL-2**  
Metal nanoparticle fate in single cell analysis. Consequence and impact for nanomedicine.  
Ivan M. Kempson  
Future Industries Institute, University of South Australia

**11:40 - 12:16**  
**Oral Session 1 "Cancer"**  
(10 min Presentation + 2 min Discussion)  
Chairpersons: Taiho Kambe (Division of Integrated Life Science, Graduate School of Biostudies, Kyoto University, Japan)  
Lara Massai (Department of Chemistry, University of Florence, Italy)  

**O1-1**  
11:40 - 11:52  
Talc contributes to ovarian carcinogenesis via iron overload through multiple mechanisms  
Yashiro Motooka1, Misako Katabuchi1,2, Shinya Toyokuni1  
1Department of Pathology and Biological Responses, Nagoya University, 2Department of Obstetrics and Gynecology, Kumamoto University

**O1-2**  
11:52 - 12:04  
Non-targeted metallomics through synchrotron radiation X-ray fluorescence with machine learning for cancer screening using blood samples  
Yu-Feng Li  
Institute of High Energy Physics, Chinese Academy of Sciences

**O1-3**  
12:04 - 12:16  
Role of ferroptosis in carcinogenesis and in physiological context  
Shinya Toyokuni, Hao Zheng, Yingyi Kong, Yashiro Motooka, Shinya Akatsuka  
Department of Pathology and Biological Responses, Nagoya University Graduate School of Medicine

**12:20 - 13:10**  
**Luncheon Seminar 1**  
Sponsored by: Agilent Technologies, Inc  

**LS-1**  
Life Science Applications and Practical Tips for Metallomic Studies Using Agilent Triple Quadrupole ICP-MS (ICP-QQQ)  
Tetsuo Kubota  
Agilent Technologies, Inc

**14:30 - 15:50**  
**Specialty Session 2**  
(17 min Presentation + 3 min Discussion)  
Chairpersons: Shoji Nakayama (Japan Environment and Children's Study Programme Office, National Institute for Environmental Studies, Japan)  
Yayoi Kobayashi (Health and Environmental Risk Division, National Institute for Environmental Studies, Japan)  

**SS2-1**  
14:30 - 14:50  
Elemental analysis of biological samples in large-scale birth cohort study  
Yayoi Kobayashi, Tomohiko Isobe, Miyuki Iwai-Shimada, Mai Takagi, Shoji F. Nakayama  
Health and Environmental Risk Division, National Institute for Environmental Studies
### SS2-2
14:50 - 15:10

**Tooth-based biomarkers of atypical metal regulation in Autism Spectrum Disorder**
Christine Austin¹, Paul Curtin¹, Austen Curtin¹, Chris Gennings¹, Elena Baldwin¹, Dani Dumitriu¹,², Abraham Reichenberg¹,³,⁴, Kristiina Tammimies⁵,⁶, Sven Bölte⁵,⁶, Raymond F. Palmer⁷, Manish Arora¹

¹Department of Environmental Medicine and Public Health, Icahn School of Medicine at Mount Sinai, ²Departments of Pediatrics and Psychiatry, Columbia University Irving Medical Center, NY, USA, ³Department of Psychiatry, Icahn School of Medicine at Mount Sinai, NY, USA, ⁴Seaver Autism Center for Research and Treatment, Icahn School of Medicine at Mount Sinai, NY, USA, ⁵Center of Neurodevelopmental Disorders, Division of Neuropsychiatry, Department of Women’s and Children’s Health, Karolinska Institutet, Stockholm, Sweden, ⁶Child and Adolescent Psychiatry, Center for Psychiatry Research, Stockholm County Council, Stockholm, Sweden, ⁷Family and Community Medicine, School of Medicine, University of Texas Health Sciences Center, TX, USA

### SS2-3
15:10 - 15:30

**Excessive oral cadmium exposure through rice consumption and renal tubular dysfunction in farmers in Northern Japan revealed by health examination and hospital-based screening for cadmium nephropathy**
Hyogo Horiguchi
Department of Hygiene, Kitasato University School of Medicine

### SS2-4*
15:30 - 15:50

**Human Biomonitoring in Germany & Europe – science and policy for a healthy future**
Aline Murawski, Till Weber, Marike Kolossa-Gehring
German Environment Agency (UBA), Section Toxicology, Health-related Environmental Monitoring

### 15:50 -

**Coffee Break**

### 16:10 - 18:10

**Specialty Session 3 (25 min Presentation + 5 min Discussion)**
Chairpersons: Emiko Harada (Department of Biological Resources Management, School of Environmental Science, The University of Shiga Prefecture, Japan)
Akiko Hokura (Department of Applied Chemistry, Tokyo Denki University, Japan)

#### SS3-1
16:10 - 16:40

**High-Mg Calcite Nanoparticles Within a Low-Mg Calcite Matrix – a Widespread Strategy in Biomineralization**
Boaz Pokroy
Department of Materials Science and Engineering, Technion Israel Institute of Technology

#### SS3-2
16:40 - 17:10

**Organic molecules related to the biomineralization of mollusks and bacteria**
Michio Suzuki
Department of Applied Biological Chemistry, Graduate School of Agricultural and Life Sciences, the University of Tokyo

#### SS3-3
17:10 - 17:40

**Nanoscale imaging of intact biological specimens in water using scanning electron assisted dielectric microscopy**
Toshihiko Ogura, Tomoko Okada
Health and Medical Research Institute, National Institute of Advanced Industrial Science and Technology (AIST)

#### SS3-4
17:40 - 18:10

**Biogenic manganese oxides (BMO) — an introduction to the recent research development**
Kazuhiro Toyoda¹,²
¹Faculty of Environmental Earth Science, Hokkaido University, Sapporo, Japan, ²Graduate School of Environmental Science, Hokkaido University, Sapporo, Japan
The 8th International Symposium on Metallomics
ISM-8
July 11, 2022 (Mon) – July 14, 2022 (Thu)
O2-6
10:30 - 10:42
Hybrid Imaging Analyses of Biomolecules: From Biological Tissues to Molecules and Metals
Tadayuki Ogawa¹, Eisei Tanaka², Tomonari Umemura³, Shino Takeda-Hornma³, Takafumi Hirata³
¹Research Center for Advanced Medical Science, Doshisha Medical University, ²Geochemical Research Center, The University of Tokyo, ³School of Life Sciences, Tokyo University of Pharmacy and Life Sciences, ⁴National Institute of Radiological Sciences, National Institutes for Quantum Science and Technology

*: Online presentation

10:42 -
Coffee Break

11:00 - 11:30
Keynote Lecture 4 (25 min Presentation + 5 min Discussion)
Chairpersons: Yanbei Zhu (National Institute of Advanced Industrial Science and Technology, Japan)
Laurent Ouerdane (IPREM UMR5254 UPPA/CNRS, Pau University, France)
KL-4*
Molybdenum sulfide nanomaterials transform and incorporate into molybdenum enzymes and affect their activities in vivo
Mingjing Cao, Chunying Chen
CAS Key Laboratory for Biomedical Effects of Nanomaterials and Nanosafety and CAS Center for Excellence in Nanoscience, National Center for Nanoscience and Technology of China, Beijing 100190, P. R. China.

11:30 - 12:06
Oral Session 3 "Analytical Technique-2" (10 min Presentation + 2 min Discussion)
Chairpersons: Yanbei Zhu (National Institute of Advanced Industrial Science and Technology, Japan)
Laurent Ouerdane (IPREM UMR5254 UPPA/CNRS, Pau University, France)
O3-1*
11:30 - 11:42
Inductively Coupled Plasma Tandem Mass Spectrometry – versatile tool for investigation of superparamagnetic nanoparticles in proteinaceous media
Jacek Maria Sikorski, Agnieszka Kamińska, Magdalena Matczuk, Anna Wróblewska, Lena Ruzik, Maciej Jarosz
Faculty of Chemistry, Warsaw University of Technology

O3-2
11:42 - 11:54
Simultaneous imaging analyses of elements and molecules using laser ablation coupled with atmospheric pressure plasma-based mass spectrometry
Hui Hsin Khoo¹, Haruo Shimada², Hidekazu Miyahara¹, Takaosumi Hirata¹
¹Geochemical Research Center, School of Science, The University of Tokyo, ²BioChromato, Inc.

O3-3
11:54 - 12:06
Single-cell analysis for measuring intracellular RuBisCO using a cell puncture type immunosensor
Atsushi Shoji¹, Chika Morimoto², Yukiko Moriiwa¹, Kazuhiro Moriiwa¹, Hidetoshi Kumata², Akio Yanagida¹, Tomonari Umemura³
¹Department of Biomedical Analysis, School of Pharmacy, Tokyo University of Pharmacy and Life Sciences, ²Department of Molecular Life Sciences, School of Life Sciences, Tokyo University of Pharmacy and Life Sciences
12:20 - 13:10

Luncheon Seminar 2

**How to Design a Laser Ablation System for Metallomic Bioimaging**

Rob Hutchinson¹, David Douglas¹, Ciaran O’Connor², Yohei Kamata³, Chihito Kawada¹

¹Elemental Scientific Lasers, 8 Auro Court, Ermine Business Park, Huntingdon, Cambridgeshire, PE29 6XS, United Kingdom, rhutchinson@icprns.com, ²Elemental Scientific Inc, 685 Old Buffalo Trail, Bayandex, MT 59715, United States, ³Japan Laser Corp, 2-14-1, Nishiwaseda, Shinjuku-ku, Tokyo, 169-0051 Japan

14:30 - 15:00

**Keynote Lecture 5**

(25 min Presentation + 5 min Discussion)

Chairpersons: Shinya Toyokuni (Department of Pathology and Biological Responses, Nagoya University Graduate School of Medicine, Japan)

Hua Naranmandura (Zhejiang University, China)

**Molecular magnetic resonance imaging and metallomics**

Peter Caravan¹ ², Veronica Clavijo Jordan¹ ², Mariane Le Fur¹ ²

¹Institute for Innovation in Imaging, Massachusetts General Hospital, ²Department of Radiology, Harvard Medical School

15:00 - 16:12

**Oral Session 4 "Diagnosis & Therapeutics"**

(10 min Presentation + 2 min Discussion)

Chairpersons: Shinya Toyokuni (Department of Pathology and Biological Responses, Nagoya University Graduate School of Medicine, Japan)

Hua Naranmandura (Zhejiang University, China)

**Development of heme-selective biomolecule-labeling probes for omics analysis and tissue imaging**

Ryo Kakiuchi¹, Tasuku Hirayama¹, Shohei Tsuji¹, Masamitsu Shimazawa¹, Tomonori Tamura², Itaru Hamachi², Mieko Tsuji¹, Hideko Nagasawa¹

¹Gifu Pharmaceutical University, ²Graduate School of Engineering, Kyoto University

**Pharmacokinetics, distribution, and speciation analysis of gadoterate, gadoteridol, gadobutrol and gadobenate in rats**

Mariane Le Fur¹, Brianna Moon¹, Samantha Zygmont¹, Avery Boice¹, Iris Zhou¹, Nicholas Rotile³, Pamela Pantazopoulos¹, Andre Astashkin³, Brian Jackson³, Peter Caravan¹

¹The Athinoula A. Martinos Center for Biomedical Imaging, The Institute for Innovation in Imaging, Massachusetts General Hospital and Harvard Medical School, 149 Thirteenth Street, Charlestown, MA 02129, USA, ²Department of Chemistry and Biochemistry, University of Arizona, Tucson, AZ 85721, USA, ³Trace Element Analysis Laboratory, Dartmouth College, Hanover, NH 03755, USA

**Biomineralization-inspired preparation of chitosan/calcium carbonate composite core-shell microparticles for drug carrier**

Satoshi Tanimoto, Izuka Nishii, Shokyoku Kanaoka

Department of Materials Science, The University of Shiga Prefecture
The 8th International Symposium on Metallomics

July 11, 2022 (Mon) – July 14, 2022 (Thu)

July 12 (Tue), Room B (2F)

O4-4
15:36 - 15:48
in vitro / in vivo activity of fluoromethyl group-introduced antitumor-active dinuclear platinum(II) complex
Masako Uemura¹, Keiichi Hiramoto¹, Hiroki Yoneyama², Yoshihide USAMI², Shinya Harusawa², Seiji Komeda¹
¹Faculty of Pharmaceutical Sciences, Suzuka University of Medical Science, ²Faculty of Pharmaceutical Sciences, Osaka Medical and Pharmaceutical University

O4-5*
15:48 - 16:00
Fine-tuning of multitarget anticancer metalloendrimers cellular incorporation
Andrei Pasca¹,², Dylan Giffard¹, Cristian Pop¹, Joaquin Barroso-Flores¹, Eugen Gurzau⁴, Gregory S. Smith³, Catalin Ioan Vlad¹,², Bhaskar Saha⁶, Eva Fischer-Fodor⁵, Patriciu Achimas-Cadaru¹,²
¹The Oncology Institute “Prof. Dr. Ion Chiricuta”, Cluj Napoca, Romania, ²“Iuliu Hatieganu” University of Medicine and Pharmacy, Cluj-Napoca Romania, ³University of Cape Town, Cape Town, South Africa, ⁴Environmental Health Center, Cluj Napoca, Romania, ⁵National Autonomous University, Ciudad de México, Mexico, ⁶National Centre for Cell Science, Ganeshkhind, Pune, India

O4-6
16:00 - 16:12
Tetrazolato-bridged dinuclear Pt(II) complexes and their potential applications in cancer chemotherapy
Seiji Komeda, Masako Uemura, Keiichi Hiramoto
Faculty of Pharmaceutical Sciences, Suzuka University of Medical Science

16:12 -
Coffee Break

16:30 - 17:06
Oral Session 5 "Nano Science & Nano Toxicology"
(10 min Presentation + 2 min Discussion)
Chairpersons: Yoshinari Suzuki (National Institute of Health Sciences, Japan)
Yu-Feng Li (Institute of High Energy Physics, Chinese Academy of Sciences, China)

O5-1
16:30 - 16:42
Involvement of ER stress response/autophagy in silver nanoparticles exposure-induced cell death in SH-SYSY cells
Takamitsu Miyayama, Masato Matsuoka
Division of Environmental and Occupational Medicine, Department of Hygiene and Public Health, School of Medicine, Tokyo Women’s Medical University

O5-2
16:42 - 16:54
Antioxidant supplementation ameliorates the liver steatosis caused by titanium dioxide nanoparticles
Daisuke Matsumaru¹, Yuki Takeshita¹, Ryoo Koike¹, Keishi Ishida¹, Yu-ki Tanaka³, Yasumitsu Ogra², Tsuyoshi Nakanishi¹
¹Laboratory of Hygienic Chemistry and Molecular Toxicology, Gifu Pharmaceutical University, ²Graduate School of Pharmaceutical Sciences, Chiba University

O5-3*
16:54 - 17:06
The formation of cisplatin targeted delivery systems based on gold nanoparticles – the synthetic and analytical challenges
Anna M. Wróblewska, Jacek Sikorski, Magdalena Matczuk
Chair of Analytical Chemistry, Faculty of Chemistry, Warsaw University of Technology, Poland

O5-4
Withdrawal

17:06 -
Coffee Break
O6-1* 
17:20 - 17:32
Metal-coding assisted serological multi-omics study to decipher the pathological mechanisms and biomarkers of COVID-19
Ying Zhou1, Shuofeng Yuan1, Hongyan Li1, Kwok-Yung Yuen2, Jasper Fuk-Woo Chan2, Hongzhe Sun1
1Department of Chemistry, The university of Hong Kong, 2Department of Microbiology, The university of Hong Kong

O6-2* 
17:32 - 17:44
Gold(I) complexes: a promising class of SARS-CoV-2 Mpro inhibitors
Lara Massai1, Deborah Grifagni1, Francesca Cantini1,2,3, Vito Calderone1,2,3, Lucia Banci1,2,3, Luigi Messori1
1Department of Chemistry, University of Florence, via della Lastruccia 3-13, 50019, Sesto Fiorentino, Firenze, Italy, 2Center of Magnetic Resonance, University of Florence, via Luigi Sacconi 3-13, 50019, Sesto Fiorentino, Firenze, Italy, 3Consorzio Interuniversitario Risonanze Magnetiche MetalloProteine (CIRMMP), via Sacconi 6, Sesto Fiorentino, 50019, Italy

O6-3 
17:44 - 17:56
Coordination properties of mycobacterial SmtB/BigR4 α5 domain in zinc and nickel systems; the structure of dimeric BigR4 protein
Sławomir Potocki1, Anna Rola1, Karolina Mojsa2, Anna Pyra2, Damian Trojanowski2, Joanna Holówka2, Robert Wieczorek2, Henryk Kozłowski1, Paulina Potok1, Artur Krężel1, Jolanta Zatkowska-Czerwińska1, Elżbieta Gumienna-Kontecka1
1Faculty of Chemistry, University of Wrocław, 2Faculty of Biotechnology, University of Wrocław, 3Institute of Health Science, University of Opole

O6-4* 
17:56 - 18:08
LA-ICP-MS Bioimaging of Metal Ions in the Brain of Parkinson's Disease Model Mouse Undergoing Manganese-enhanced MRI
Yao Zhao1, Wei Chen1, Fuyi Wang1,2,3, Hao Lei1,2,3
1Institute of Chemistry, Chinese Academy of Sciences, 2Innovation Academy for Precision Measurement Science and Technology, Chinese Academy of Sciences, 3University of Chinese Academy of Sciences

O6-5* 
18:08 - 18:20
METALLOMIC – METABOLOMICS APPROACHES TO STUDY THE EFFECT OF METAL POLLUTION ON AGING AND ASSOCIATED NEURODEGENERATIVE PATHOLOGIES
Jose-Luis Gomez-Ariza1,2
1Department of Chemistry, Huelva University, 2Research Center on Natural Resources, Health and the Environment (RENSMA)
8:45 - 9:15

**Keynote Lecture 6**  
(25 min Presentation + 5 min Discussion)

Chairpersons: Shigetoshi Aono (Exploratory Research Center on Life and Living Systems, National Institutes of Natural Sciences, Japan)  
Ayako Fukunaka (Institute for Molecular & Cellular Regulation, Gunma University, Japan)

**KL-6**  
Metal complexes in biological environments: a new frontier in inorganic chemistry

**Focuses on Mn-SOD mimics: from design to evaluation in cells**

Clotilde Policarı, Nicolas Delsucı, Hélène Bertrandı, Emilie Mathieuı, Gabrielle Schanneı, Martha Zoumpoulakiı, Hugues Preud’hommeı, Ryszard Lobinskiı, Joelle Vinhı, Giovanni Chiapettaı

1Laboratoire des biomolécules (LBM), Département de chimie, École normale supérieure, PSL University, Sorbonne Université, CNRS, 75005 Paris, France, ; 2IPREM-UMR5254, E2S UPPA, CNRS, Technopôle Hélioparc, 64053 Pau Cedex 9 (France), ; SMBF ESPCI Paris, PSL University, UMR 8249 CNRS

9:15 - 10:27

**Oral Session 7 "Protein & Enzyme"**  
(10 min Presentation + 2 min Discussion)

Chairpersons: Shigetoshi Aono (Exploratory Research Center on Life and Living Systems, National Institutes of Natural Sciences, Japan)  
Ayako Fukunaka (Institute for Molecular & Cellular Regulation, Gunma University, Japan)

**O7-1* 9:15 - 9:27**

**NtZIP5 in the Zn and Cd homeostasis**

Małgorzata Palusirska, Karolina Maślińska-Gromadka, Anna Barabasz, Danuta Maria Antosiewicz

Department of Plant Metal Homeostasis, Faculty of Biology, University of Warsaw, Poland

**O7-2 9:27 - 9:39**

**TEM-1 beta-lactamase is not a metalloenzyme but metal ion binding to the histidine-pairs exposed at the protein surface may count**

Zeyad H. A. Nafaeeı, Eva Hunyadi-Gulyası, Bela Gyurcsikı

1Department of Inorganic and Analytical Chemistry, University of Szeged, Dom ter 7, H-6720 Szeged, Hungary, ; 2College of Pharmacy, University of Babylon, Hilah 51001 Babel, Iraq, ; 3Laboratory of Proteomics Research, Biological Research Centre, Temesvári krt. 62, H-6726 Szeged, Hungary

**O7-3 9:39 - 9:51**

**Identification of bacteriostatic agents by inhibiting the iron uptake protein, FbpA, from a marine-borne Gram-negative bacterium, Vibrio metschnikovii**

Peng Lu, Miaomiao Sui, Minmin Zhang, Mengyao Wang, Takehiro Kamiya, Ken Okamoto, Hideaki Itoh, Suguru Okuda, Michio Suzuki, Tomiko Asakura, Toru Fujiwara, Koji Nagata

Department of Applied Biological Chemistry, Graduate School of Agricultural and Life Sciences, The University of Tokyo

**O7-4 9:51 - 10:03**

**Structural basis of CO biosynthesis for the assembly of the active site in NiFe-hydrogenase**

Norifumi Muraki, Shigetoshi Aono

Exploratory Research Center on Life and Living Systems, National Institutes of Natural Sciences

**O7-5 10:03 - 10:15**

**Significance of selenoprotein P expression on selenium-homeostasis in hepatocytes**

Moeka Natori , Kotoko Arisawa, Takashi Toyama, Takayuki Hoshi, Yoshiro Saito

Faculty of Pharmaceutical Sciences, Tohoku University

**O7-6 10:15 - 10:27**

**Bacterial Cu/Zn-superoxide dismutase with a novel fold**

Yoshiaki Furukawa, Shuhei Nanikiyo, Masato Akutsu, Atsuko Shintani

Department of Chemistry, Keio University
### July 13 (Wed), Room A (1F)

**10:27 -**

**Coffee Break**

**12:00 - 12:50**

**Luncheon Seminar 3**

**Sponsored by: Thermo Fisher Scientific K.K.**

**LS-3**  
**Simultaneous Imagings of Elements and Biomolecules using Mass Spectrometry coupled with Laser Ablation in Liquid Technique**

Takafumi Hirata, Hui Hsin Khoo, Menghao Yang

*Geochemical Research Center, The Univ. Tokyo*
8:45 - 9:15

Keynote Lecture 7
(25 min Presentation + 5 min Discussion)
Chairpersons: Michio Suzuki (Department of Applied Biological Chemistry, Graduate School of Agricultural and Life Sciences, the University of Tokyo, Japan)
Zoyne Pedrero Zayas (CNRS/ IPREM, France)

KL-7
Mercury pollution problem in Russia: current trends and health outcomes
Anatoly Skalnyy1,2,3
1Sechenov University, 2RUDN University, 3Orenburg State University

9:15 - 10:27

Oral Session 8 "Environmental Science"
(10 min Presentation + 2 min Discussion)
Chairpersons: Michio Suzuki (Department of Applied Biological Chemistry, Graduate School of Agricultural and Life Sciences, the University of Tokyo, Japan)
Zoyne Pedrero Zayas (CNRS/ IPREM, France)

O8-1
9:15 - 9:27
Novel pathway for assimilation of trimethylselenonium in soil microorganisms
Masao Inoue1,2, Anna Ochi1, Chinatsu Terabe1, Mai Tanaka1, Riku Aono1, Soichi Sato1, Yasumitsu Ogra4, Hisaaki Mihara1
1College of Life Sciences, Ritsumeikan University, 2R-GIRO, Ritsumeikan University, 3Faculty of Science and Engineering, Toyo University, 4Graduate School of Pharmaceutical Sciences, Chiba University

O8-2
9:27 - 9:39
Advanced metallophore characterization by hyphenated techniques in the soil-microorganisms-plants environmental systems
Laurent Ouerdane, Katarzyna Kinska, Alex Goupil, Luluil Maknun, Ryszard Lobinski
Institut des Sciences Analytiques et de Physico-Chimie pour l’Environnement et les Matériaux (IPREM), UMR 5254 CNRS-UPPA-E2S, Pau, France

O8-3
9:39 - 9:51
Effect of organics on the stabilization and crystallization of amorphous calcium carbonate (ACC) in 3D printable pastes
Hadar Shaked1, Iryna Polishchuk1, Alina Nagel2, Yehonadav Bekenstein2, Boaz Pokroy3
1Bio-Inspired Surface Engineering and Biominalization Lab, Department of Materials Science and Engineering, Technion - Israel Institute of Technology, 2Quantum Materials for Energy Applications, Department of Materials Science and Engineering, Technion - Israel Institute of Technology

O8-4
9:51 - 10:03
Biosorption mechanism in the selective recovery of precious metals
Ayumi Minoda1, Shin-ichi Miyashita2, Toshihiko Ogura1, Takahiro Kondo1, Yoshio Takahashi5
1Faculty of Life and Environmental Sciences, University of Tsukuba, 2National Metrology Institute of Japan, National Institute of Advanced Industrial Science and Technology, 3Health and Medical Research Institute, National Institute of Advanced Industrial Science and Technology, 4Faculty of Pure and Applied Sciences, University of Tsukuba, 5Department of Earth and Planetary Science, the University of Tokyo

O8-5
10:03 - 10:15
Learning from intracrystalline proteins in biogenic minerals how to tune various physical properties of synthetic crystals
Iryna Polishchuk, Nuphar Bianco-Stein, Boaz Pokroy
Technion - Israel Institute of Technology, Department of Materials Science and Engineering
**Variation of trace element level in diatom cells from Japanese eutrophic lakes using synchrotron radiation microbeam X-ray fluorescence spectrometry**

Takaaki Itai, Kazusa Tamura, Yoshio Takahashi  
*Department of Earth and Planetary Science, The University of Tokyo*

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**Coffee Break**

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**Luncheon Seminar 4**  
**Sponsored by: PerkinElmer Japan Co., Ltd.**

**Continuing Evolution of ICP-MS Contributes to Metallomics Research**

Kyoko Kobayashi  
*Application Research Lab / Inorganic, Applied Market, PerkinElmer Japan Co., Ltd.*
# The 8th International Symposium on Metallomics

**ISM-8**  
**July 11, 2022 (Mon) – July 14, 2022 (Thu)**  
* Online presentation

## July 14 (Thu), Room A (1F)

### 8:45 - 9:15

**Keynote Lecture 8**  
(25 min Presentation + 5 min Discussion)

**Chairpersons:** Yoshiro Saito (Graduate School of Pharmaceutical Sciences, Tohoku University, Japan)  
Tejo Prakash Nagaraja (School of Energy and Environment, Thapar Institute of Engineering and Technology, Patiala, India)

**KL-8* New Strategy for Overcoming ATO-resistant APL**

Hua Naranmandura  
Zhejiang University

### 9:15 - 10:15

**Oral Session 9 "Metalloid-1"**  
(10 min Presentation + 2 min Discussion)

**Chairpersons:** Yoshiro Saito (Graduate School of Pharmaceutical Sciences, Tohoku University, Japan)  
Tejo Prakash Nagaraja (School of Energy and Environment, Thapar Institute of Engineering and Technology, Patiala, India)

**O9-1 9:15 - 9:27**

**New insights on mercury detoxification in marine animals: Role of selenoneine and isotopic tracking of HgSe nanoparticles formation**

Zoyne Pedrero Zayas, Khouloud El Hanafi, Silvia Queipo-Abad, Laurent Ouerdane, Claudia Marchán Moreno, Maite Bueno, Florence Pannier, Warren T. Corns, Yves Cherel, Paco Bustamante, David Amouroux  
1Université de Pau et des Pays de l’Adour, U2S UP, CNRS, IPREM, Institut des Sciences Analytiques et de Physico-Chimie pour l’Environnement et les Matériaux, 64000 Pau, France; 2PS Analytical, Orpington, Kent BR5 3HP, U.K.; 3Centre d’Etudes Biologiques de Chizé, UMR 7372 CNRS–La Rochelle Université, 79360 Villiers-en-Bois, France; 4Littoral Environnement et Sociétés (LIENS), UMR 7266 CNRS–La Rochelle Université, 17000 La Rochelle, France; 5Institut Universitaire de France (IUF), 75005 Paris, France


**Synchrotron μ-XRF imaging of arsenic in frozen-hydrated sections of a root of Pteris vittata**

Teruhiko Kashiwabara, Nobuyuki Kitajima, Ryoko Onuma, Naoki Fukuda, Satoshi Endo, Yasuko Terada, Tomoko Abe, Akiko Hokura, Izumi Nakai  
1Japan Agency for Marine-Earth Science and Technology, 2Tokyo University of Science, 3Fujita Co., 4Tokyo Denki University, 5RIKEN, 6JASRI SPring-8

**O9-3 9:39 - 9:51**

**Characterization of pentaheme cytochrome c selenoprotein, a novel polysulfide/selenite reductase, from Geobacter sulfurreducens**

Hisaaki Mihara, Takuya Yoshizawa, Yukiko Izu, Miki Jinno, Masao Inoue, Riku Aono, Ryuta Tobe, Hiroyoshi Matsumura  
1College of Life Sciences, Ritsumeikan University, 2R-GIRO, Ritsumeikan University

**O9-4* 9:51 - 10:03**

**Selenium and Seleniferous Crops of Punjab, India: A research account on quantification, speciation and bioactivity**

Tejo Prakash Nagaraja  
Centre of Excellence in Emerging Materials, School of Energy and Environment, Thapar Institute of Engineering and Technology, Patiala, India
The 8th International Symposium on Metallomics

July 11, 2022 (Mon) – July 14, 2022 (Thu)

* Online presentation

O9-4* Selenium and Seleniferous Crops of Punjab, India: A research account on
O9-3 Characterization of pentaheme cytochrome c selenoprotein, a novel polysulfide/
O9-2 Synchrotron /uniBC-XRF imaging of arsenic in frozen-hydrated sections of a root of Pteris
(Graduate School of Pharmaceutical Sciences, Tohoku University, Japan)

Chairpersons: Yoshiro Saito

KL-8* New Strategy for Overcoming ATO-resistant APL

The 8th International Symposium on Metallomics

O10-4 A significant role of selenoprotein P as a regulator of pancreatic β cell functiondisorders related to its deficiency and excess
Yoshiro Saito
Graduate School of Pharmaceutical Sciences, Tohoku University

Closing & Handover Ceremony

Kanazawa-city, Ishikawa
**Specialty Session 4**

(25 min Presentation + 5 min Discussion)

Chairperson: Kazuya Kikuchi (Graduate School of Engineering, Osaka University, Japan)

**SS4-1**
8:45 - 9:15

Single cell ICP-MS to study the uptake of trace elements and the biosynthesis of nanoparticles by microorganisms

Maria Montes-Bayon\(^1,2\), Roberto Alvarez-Fernández\(^3\), Paula García- Cancela\(^1,2\), Beatriz Gómez-Gómez\(^3\), Yolanda Madrid-Albarran\(^3\), Jörg Bettmer\(^1,2\)

\(^1\)Department of Physical and Analytical Chemistry, University of Oviedo, 33006 Oviedo, Spain, \(^2\)Instituto de Investigación Sanitaria del Principado de Asturias (ISPA), \(^3\)Department of Analytical Chemistry, Complutense University of Madrid, 28040 Madrid, Spain

**SS4-2**
9:15 - 9:45

Microfluidic chip combined with inductively coupled plasma mass spectrometry for single cell analysis

Bin Hu
Department of Chemistry, Wuhan University

**SS4-3**
9:45 - 10:15

New tools for illuminating extracellular metallobiology as potential disease biomarkers

Marie C Heffern
Department of Chemistry, University of California, Davis

**Coffee Break**
10:15 - 10:30

**SS4-4**
10:30 - 11:00

Metalloproteomics for mapping metals to proteins by in cells: uncovering molecular target of chromium(III)

Hongzhe Sun\(^1\), Haibo Wang\(^1\), Ligang Hu\(^1\), Ying Zhou\(^1\), Xiaohan Xu\(^1\), Guibin Jiang\(^2\), Hongyan Li\(^1\)

\(^1\)Department of Chemistry, The University of Hong Kong, Hong Kong, P.R. China, \(^2\)State Key Laboratory of Environmental Chemistry and Ecotoxicology, Research Center for Eco-environmental Sciences, the Chinese Academy of Sciences, Beijing, P.R. China

**SS4-5**
11:00 - 11:30

Design of organogold complexes for biomedical applications: from non-covalent interactions to metal-templated catalysis in cells

Angela Casini
Department of Chemistry, Technical University of Munich
**The 8th International Symposium on Metallomics**

**ISM-8**

**July 11, 2022 (Mon) – July 14, 2022 (Thu)**

**Poster Presentation July 12 (Tue)- July 14 (Thu), Room C (2F)**

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**On-site Poster Presentation Core Time**

Odd Number: 13:20 - 14:20, July 12 (Tue), Room C (2F)
Even Number: 10:50 - 11:50, July 13 (Wed), Room C (2F)

**Online Poster Presentation Core Time (oVice)**

Odd Number: 20:00 - 20:45, July 12 (Tue), Online (oVice)
Even Number: 20:45 - 21:30, July 12 (Tue), Online (oVice)

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**P-1**

**Coupling of Fe stable isotope analysis and X-ray absorption spectroscopy to assess the biological Fe cycle of marine organisms**

Nanako Hasegawa1, Takaaki Itai2, Tatsuya Kunisue2, Yoshio Takahashi1

1Department of Earth and Planetary Science, the University of Tokyo, 2Center for Marine Environmental Studies (CMES), Ehime University

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**P-2**

**Withdrawal**

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**P-3**

**Quantification of trace amount of 90Sr in small size biosamples using isotope dilution–energy filtered thermal ionization mass-spectrometry: controlling the background noise from natural Sr in samples**

Yo Aoki1, Shigeyuki Wakaki1, Takashi Miyazaki1, Katsuhiko Suzuki2, Yoshitaka Takagai1, 3

1Faculty of Symbiotic Systems Science, Fukushima University, 2Center for Marine Environmental Studies, 3Fukushima University

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**P-4**


Shunto Sakai1, Tamotsu Yamamoto1, Jun Miyazaki1, Akiko Hokura2

1Department of Materials Science and Engineering, Graduate School of Engineering, Tokyo Denki University, 2Micro Emission Ltd.

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**P-5**

**Withdrawal**

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**P-6**

**Development of an Infrared Droplet Desolvation System for Single Human Cell Introduction to ICP-AES/MS**

Takashi Ohta1, Yusaku Yanagi1, Yuya Shimizu1, Kiori Kawade1, Yuki Maemoto1, Motohide Aoki1, Takahiro Iwai1, Tomonari Umemura2, Koichi Chiba3, Akitoshi Okino1

1FIRST, Tokyo Institute of Technology, 2School of Life Sciences, Tokyo University of Pharmacy and Life Sciences, 3Photon Science Research Division, RIKEN, 4School of Science and Technology, Kwansei Gakuin University

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**P-7**

**Inverter-modulated microplasma excitation source for high sensitive analysis of various elements**

Yuya Shimizu1, Yuta Ishikawa1, Yusaku Yanagi1, Daiki Yoshida1, Takashi Ohta1, Motohide Aoki1, Tomonari Umemura1, Akitoshi Okino1

1Laboratory for Future Interdisciplinary Research of Science and Technology, Tokyo Institute of Technology, 2Graduate School of Life Sciences, Tokyo University of Pharmacy and Life Sciences

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**P-8**

**Development of ICP-MS sampling equipment for single cell elemental analysis**

Motohide Aoki1, Yanbei Zhu1, Takao Yasui1, Akitoshi Okino1, Tomonari Umemura1

1School of Life Sciences, Tokyo University of Pharmacy and Life Sciences, 2National Metrology Institute of Japan (NMIJ), National Institute of Advanced Industrial Science and Technology (AIST), 3Department of Biomolecular Engineering, Graduate School of Engineering, Nagoya University, 4FIRST, Tokyo Institute of Technology
P-9  Development and application of quantitative detection method for reactive selenium species
Misaki Matsunaga¹, Noriyuki Suzuki², Yasumitsu Ogra²

P-10  Physiological Response to the Extraordinary Iron Stress in A Unicellular Red Alga Galdieria sulphuraria
Yukihiro Fukuta¹, Shin-ichi Miyashita¹, Yuu Hirose³, Ayumi Minoda¹
¹Graduate school of science and technology, University of Tsukuba, ²National Metrology Institute of Japan, National Institute of Advanced Industrial Science and Technology, ³Faculty of Applied Chemistry and Life Science Toyohashi University of Technology, ²Faculty of Life and Environmental sciences, University of Tsukuba

P-11  Polysulfide transport across outer membrane in the sulfur-reducing bacterium Geobacter sulfurreducens
Daiki Fujita¹, Mst. Ishrat Jahan¹, Yudai Ishido¹, Yukiko Izu¹, Masao Inoue¹,², Riku Aono¹, Hisaaki Mihara¹
¹Department of Biotechnology, College of Life Sciences, Ritsumeikan University, Kusatsu, Shiga 525-8577, Japan, ²Ritsumeikan Global Innovation Research Organization, Ritsumeikan University, Kusatsu, Shiga 525-8577, Japan

P-12  Molecular Dynamics Simulation Reveals Structural Variations of Metallothionein with or without Zinc Ions
Rikuri Morita, Yasuteru Shigeta, Ryuhei Harada
Center for Computational Sciences, University of Tsukuba

P-13  Adaptive changes in expression and structure of Ni transporters in the Ni hyperaccumulator Noecca japonica
Sho Nishida¹,², Takuo Enomoto¹, Junko Yoshida¹, Ryoji Tanikawa⁴, Takafumi Mizuno⁴, Naoki Furuta⁴
¹Faculty of Agriculture, Saga University, ²United Graduate School of Agricultural Sciences, Kagoshima University, ³Graduate School of Bioresources, Me University, ⁴Faculty of Science and Engineering, Chuo University

P-14  Selenite respiration in a Cellulomonas strain isolated from a seleniferous soil
Hibiki Ueda¹, Akinori Sakamoto¹, Kohei Makimura¹, Masao Inoue¹,², Riku Aono¹, Ryuta Tobe¹, Yu Hirose³, N. Tejo Prakash⁴, Hisaaki Mihara¹
¹Department of Biotechnology, College of Life Sciences, Ritsumeikan University, Shiga 525-8577, Japan, ²Ritsumeikan Global Innovation Research Organization, Ritsumeikan University, Kusatsu, Shiga 525-8577, Japan, ³Department of Applied Chemistry and Biotechnology, Toyohashi University of Technology, Toyohashi, Aichi 441-8580, Japan, ⁴Thapar Institute of Engineering & technology, Patiala, Punjab 147004, India

P-15  Different substrate specificities of two catalytic subunits of selenate/tellurate reductase in Escherichia coli
Kyohei Kusakabe¹, Riku Aono¹, Masao Inoue¹,², Ryuta Tobe¹, Hisaaki Mihara¹
¹College of Life Sciences, Ritsumeikan University, ²R-GIRO, Ritsumeikan University

P-16  Functional analysis of a novel molybdenum-dependent methionine sulfoxide reductase from Bacillus species
Kyohei Kojima¹, Yuka Kuzuno¹, Anna Ochi¹, Riku Aono¹, Masao Inoue¹,², Ryuta Tobe¹, Yoichi Takeda¹, N. Tejo Prakash¹, Hisaaki Mihara¹
¹College of Life Sciences, Ritsumeikan University, ²R-GIRO, Ritsumeikan University, ³School of Energy and Environment, Thapar Institute of Engineering and Technology

P-17  Structure and function of heme uptake system in Corynebacteria
Norifumi Muraki¹,², Shigetoshi Aono¹,²
¹Metallobiology group, Exploratory Research Center on Life and Living System, National Institute for Natural Sciences, ²Biomolecular Functions, Institute for Molecular Science, National Institute for Natural Sciences
**P-18**

**Metallomic investigation for inhibiting the fibril-formation of collagen proteins**

Hiroyuki Yasui, Eiichi Tanaka, Hyori Fukui, Rio Uno, Akan Tsunoda, Wakana Nishino  
Department of Analytical and Bioanalytical Chemistry, Division of Analytical and Physical Sciences, Kyoto Pharmaceutical University

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**P-19**

**TDP-43 transports ferritin heavy chain mRNA to regulate oxidative stress in neuronal axons**


1Department of Neurology, Osaka University Graduate School of Medicine, 2Department of Neurotherapeutics, Osaka University Graduate School of Medicine, 3Preemptive Medical Pharmacology for Mind and Body, Osaka University Graduate School of Pharmaceutical Sciences, 4Department of Neurology, Faculty of Medicine, Kindai University Graduate School of Medicine, 5Department of Neurology, Faculty of Medicine, Academic Research Division, University of Toyama, 6Laboratory of Pharmaceutical and Medicinal Chemistry Gifu Pharmaceutical University, 7Laboratory of Medical Therapeutics and Molecular Therapeutics, Gifu Pharmaceutical University, 8Mount Fuji Research Institute, Yamanashi Prefectural Government, 9Integrated Frontier Research for Medical Science, Institute for Open and Transdisciplinary Research Initiatives (OTRI), Osaka University

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**P-20**

**KNS3 and its two homologs form a probable cargo-receptor complex, important for ER exit of boric acid channels in Arabidopsis**

Zhe Zhang, Anisa Yamasaki, Shunsuke Nakamura, Shunsuke Takemura, Sumie Ishiguro, Junpei Takano

1Graduate School of Life and Environmental Sciences, Osaka Prefecture University, 2Graduate School of Agriculture, Hokkaido University, 3Graduate School of Bioagricultural Sciences, Nagoya University, 4Graduate School of Agriculture, Osaka Metropolitan University

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**P-21**

**Regulation of alternative splicing of MYB59 secures K homeostasis under low K conditions in Arabidopsis thaliana**

Takuo Enomoto, Nobuhito Tanaka, Toru Fujiwara, Sho Nishida

1Faculty of Agriculture, Saga University, Saga, Japan, 2Institute of Crop Science, NARO, Japan, 3Graduate School of Agricultural and Life Sciences, The University of Tokyo, 4United Graduate School of Agricultural Sciences, Kagoshima University, Kagoshima, Japan

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**P-22* Helicase (nsp13) as a Target to Develop Inhibitors for Combating SARS-CoV-2 Infection**

Xueying Wei, Suyu Wang, Yuen-Ting Wong, Runming Wang, Tianfan Cheng, Lijian Jin, Jasper Fuk-Woo Chan, Shuofeng Yuan, Hongyan Li, Hongzhe Sun  
The University of Hong Kong

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**P-23 Creation of the Artificial Water Oxidation Metalloenzyme using Cytochrome P450 Scaffold**

Misa Kamei, Masaki Nojiri  
Department of Chemistry, Graduate School of Science, Osaka University

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**P-24 Iron(III) and gallium(III) complexes of siderophores and their biomimetic analogues – coordination properties and biological activity in vitro and in vivo**

Andrzej Mikolaj Mular, Isabella Hubmann, Matthias Misslinger, Hubertus Haas, Milos Petrik, Clemens Dreistoffer, Elbizeta Gumianna-Kontecka, Henryk Kozlowski

1Faculty of Chemistry Wroclaw University Wroclaw Poland, 2Department of Nuclear Medicine Medical University Innsbruck Austria, 3Department of Molecular Biology, Medical University Innsbruck, Innsbruck, Austria, 4Institute of Molecular and Translational Medicine, Palacký University Olomouc, Olomouc, Czech Republic

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**P-25 Effect of Warm Water Washing of Green Coffee Beans on Elemental Concentrations of Roasted Coffee Beans Observed by ICP-MS after Microwave Acid Digestion**

Yanbei Zhu, Tomonari Umemura, Kitaro Oka

1National Institute of Advanced Industrial Science and Technology, 2Tokyo University of Pharmacy and Life Sciences
P-26  Histidine rich C-terminal (HRCT) tail of mycobacterial GroEL1 as a potential ligand for Cu(II)/Ni(II) ions
Anna Maria Rola, Elżbieta Gumienna-Kontecka, Sławomir Potocki
The Biological Inorganic Chemistry Group, Faculty of Chemistry, University of Wroclaw

P-27  To bind zinc or not to bind zinc: S. pneumoniae metallopeptidase binding site interaction with Zn(II), Ni(II), and Cu(II)
Paulina Potok, Elżbieta Gumienna-Kontecka, Sławomir Potocki
The Biological Inorganic Chemistry Group, Faculty of Chemistry, University of Wroclaw

P-28*  Metallo-sideromycin: A double Trojan Horse strategy for combating antimicrobial strategy
Chenyuan Wang, Running Wang, Jingru Li, Patrick H Toy, Hongyan Li, Hongzhe Sun
Department of Chemistry, Faculty of Science, the University of Hong Kong

P-29  Development of a new heme-selective fluorescent probe for sensing subcellular dynamics of labile heme
Kanta Kawai, Tasuku Hirayama, Takanori Murakami, Masatoshi Inden, Mieko Tsuji, Hideko Nagasawa
Gifu Pharmaceutical University

P-30  Possible involvement of brain copper accumulation in emotional memory disturbance in multiple mouse models of Down syndrome
Keiichi Ishihara1, Eri Kawashita1, Haruhiho Sago2, Kazuhiro Yamakawa3, Satoshi Akiba1
1Department of Pathological Biochemistry, Kyoto Pharmaceutical University, 2Center for Maternal-Fetal, Neonatal and Reproductive Medicine, National Center for Child Health and Development, Tokyo Japan, 3Department of Neurodevelopmental Disorder Genetics, Institute of Brain Science, Nagoya City University Graduate School of Medical Sciences, Nagoya, Japan

P-31  Crosstalk of selenium metabolisms between intestinal microflora and a host animal
Kazuaki Takahashi1,2, Sakie Horiai3, Sayano Iijima2, Yoshihito Yamagishi1, Hirotaro Iwase4, Yasumitsu Ogra2
1Graduate School of Horticulture, Chiba University, 2Graduate School of Pharmaceutical Sciences, Chiba University, 3Faculty of Pharmaceutical Sciences, Chiba University, 4Graduate School of Medicine, Chiba University

P-32  Metallomics Analysis for Early Assessment and Intervention of Neurodevelopment Disorders: Infantile Zinc Deficiency and Toxic Metal Burdens
Hiroshi Yasuda1,2, Toyoharu Tsutsui1
1La Belle Vie Research Laboratory, 2Institute of Nature and Environmental Technology, Kanazawa University

P-33  Neutron irradiation after administration of Gd-EDTMP to a mouse model of mammary tumor bone metastasis: Effects and distribution of Gd formulation as a novel neutron capture therapy agent
Takehisa Matsukawa1,2, Minoru Suzuki1, Ayano Kubota1, Atsuko Shinohara3,4, Kazuhiro Yokoyama1,5
1Department of Epidemiology and Environmental Health, Juntendo University Faculty of Medicine, 2Department of Forensic Medicine, Juntendo University Faculty of Medicine, 3Institute for Integrated Radiation and Nuclear Science, Kyoto University, 4Research Institute for Cultural Studies, Seisen University, 5Department of Epidemiology and Environmental Health, International University of Health and Welfare Graduate School of Public Health

P-34  Dietary exposure to trace elements in Japan in 2019-2021 with time trends since 1977
Yoshinari Suzuki1, Ikuko Kitayama2, Masae Harimoto2, Midori Kondo2, Hiroshi Akiyama1,2, Tomoaki Tsutsumi3
1National Institute of Health Sciences, 2Hoshi University

P-35  Challenges in measuring minerals in hair as a health indicator
Hiroaki Kitamura, Keigo Sugimoto, Atsuko Ota
Research and Development Department, Adens Co., Ltd
**P-36**

**Vitamin E increases lysosomal Fe (II) production in hepatocytes despite being protective against ferroptosis**

Kotoko Arisawa, Moeka Natori, Yashiro Saito

1Graduate School of Pharmaceutical Sciences, Tohoku University, 2Faculty of Pharmaceutical Sciences, Tohoku University

**P-37**

**Iron supplementation attenuates obesity and hepatic steatosis via upregulation of mitochondrial, heme, and iron-sulfur cluster-associated gene transcription**

Naho Kitamura, Yoko Yokoyama, Hiroki Taoka, Utana Nagano, Shotaro Hosoda

1Graduate School of Media and Governance, Keio University, Japan, 2Health Science Laboratory, Keio Research Institute at SFC, Japan

**P-38**

**Cu and Zn isotope ratio variations in plasma for survival prediction in haematological malignancy cases**

Mari Shimura, Agustina A. M. B. Hastuti, Marta Costas-Rodríguez, Akihiro Matsunaga, Takayuki Ichinose, Shotaro Hagiwara, Frank Vanhaecke

1Research Institute, National Center for Global Health and Medicine, 2Ghent University, Department of Chemistry, Atomic & Mass Spectrometry – A&MS research unit, 3Inorganic Analysis Laboratories, Toaray Research Center Inc., 4Internal Medicine, Hospital, National Center for Global Health and Medicine

**P-39**

**Development of micromini plasma jet for plasma injection probe to in vivo drug measurement in living organisms**

Daiki Yoshida, Yuya Shimizu, Yukiko Moriwa, Toshihiro Takamatsu, Takahiro Iwai, Atsushi Shoji, Akitochi Okino

1FIRST, Tokyo Institute of Technology, 2Tokyo University of Pharmacy and Life Sciences, 3Tokyo University of Science, 4National Cancer Center Hospital East, 5RIKEN

**P-40**

**Low-temperature Plasma Source Capable of Generating Various Reactive Species and Irradiating Living Organisms**

Taiki Osawa, Zhizhi Liu, Kai Fukuchi, Yohei Fukuyama, Yuriko Matsumura, Atsuo Iwasawa, Akitochi Okino

1FIRST, Tokyo Institute of Technology, 2Tokyo Health Care University

**P-41**

**Development of high-speed temperature control multi-gas plasma jet for irradiating to living organisms/cells**

Toshiki Aizawa, Yohei Fukuyama, Yuriko Matsumura, Atsuo Iwasawa, Akitochi Okino

1FIRST, Tokyo institute of technology, 2Tokyo Health Care University

**P-42**

**Estimation of exposure to various elements in infancy via breast milk and formula milk**

Miyuki Iwai-Shimada, Nozomi Tatsuta, Kenta Iwai, Kaname Asato, Kunihiro Nakai, Yayoi Kobayashi, Mai Takagi, Shoji F Nakayama

1National Institute for Environmental Studies, 2Tohoku University Graduate School of Medicine, 3Tokai Gakuen University

**P-43**

**Synchrotron radiation-based X-ray absorption spectroscopy revealed production of Mn oxide mediated by epiphytic bacteria in a submerged freshwater macrophyte Egaria densa**

Emiko Harada, Keisuke Oku, Sawa Tanaka, Yumu Azuma, Tomoki Ichinose, Kensuke Inaba, Akiko Hokura

1Department of Biological Resources Management, School of Environmental Science, The University of Shiga Prefecture, 2Division of Environmental Dynamics, Graduate School of Environmental Science, The University of Shiga Prefecture, 3Department of Materials Science and Engineering, Graduate School of Engineering, Tokyo Denki University
P-44 Isolation and characterization of a manganese oxidizing bacterium from a submerged plant, *Ranunculus nipponicus var. submersus*
Emiko Harada¹, Keisuke Okui², Hiroshi Hasegawa¹, Yoshiyasu Nagakawa¹, Takahide Kurosawa⁴
¹Department of Biological Resources Management, School of Environmental Science, The University of Shiga Prefecture; ²Division of Environmental Dynamics, Graduate School of Environmental Science, The University of Shiga Prefecture; ³Biotechnology Group, Tokyo Metropolitan Industrial Technology Research Institute; ⁴Faculty of Symbiotic Systems Science, Fukushima University

P-45 Roles of RecA in growth and round-body formation of *Bacillus subtilis* exposed to selenite
Anna Ochi¹, Masao Inoue¹, ², Riku Aono¹, Hisaaki Mihara¹
¹College of Life Sciences, Ritsumeikan University; ²R-GIRO, Ritsumeikan University

P-46 Crosstalk of zinc and copper in the pathogenesis of vascular type senile dementia
Masahiro Kawahara, Motonari Nakashiro, Risa Okubo, Ken-ichiro Tanaka, Midori Kato-Negishi
Department of Bio-Analytical Chemistry, Faculty of Pharmacy, Research Institute of Pharmaceutical Sciences, Musashino University

P-47 Tributyltin inhibits mitochondrial dysfunction in human iPS cells
Shigeru Yamada, Yukuto Yasuhiko, Yasunari Kanda
Division of Pharmacology, National Institute of Health Sciences

P-48 Biogenic extracellular selenium particles are wrapped within membrane vesicles in *Escherichia coli*
Kano Shibamoto³, Anna Ochi¹, Yosuke Toyotake¹, Riku Aono¹, Masao Inoue¹, ², Tomoya Imai³, Hisaaki Mihara¹
¹Department of Biotechnology, College of Life Sciences, Ritsumeikan University; ²R-GIRO, Ritsumeikan University; ³Research Institute for Sustainable Humanosphere, Kyoto University

P-49 Distinct distributions of aluminum, manganese, cobalt, and lead in the Pacific Ocean
Yoshiki Sohrin, Linjie Zheng, Cheuk-Yin Chan
Institute for Chemical Research, Kyoto University

P-50 Arsenic-induced insulin resistance and its relation with muscle loss in humans
Seiichiro Himeno¹, Khaled Hossain²
¹School of Pharmacy, Showa University; ²Rajshahi University

P-51 Effect of cadmium on human trophoblast differentiation
Shoko Ogushi¹, Tsuyoshi Nakanishi¹, Tomoki Kimura¹
¹Department of Life Science, Faculty of Science and Engineering, Setsuman University; ²Laboratory of Hygienic Chemistry and Molecular Toxicology, Gifu Pharmaceutical University

P-52 FOXA1 is responsible factor for cytoprotection by exposure to arsenic in HaCaT cells
Daigo Sumi¹, Rio Fujinaga¹, Yuri Sato¹, Ai Takase¹, Seiichiro Himeno¹, ²
¹Faculty of Pharmaceutical Sciences, Tokushima Bunri University; ²Faculty of Pharmaceutical Sciences, Showa University

P-53 Iron Nanoparticles in plants: toxicity or beneficial effect?
Sandrine CHAY, Lara ZOTTNER, Carine ALCON, Catherine CURIE, Stéphane MARI
Institute for Plant Sciences of Montpellier IPSiM, Metal Mobility team, CNrs – Inrae – Institut Agro – Université de Montpellier, France

P-54 Formation of biogenic tellurium nanorods in a unicellular green alga, *Chlamydomonas reinhardtii*
Shohei Takada¹, Yu-ki Tanaka¹, Kazuhiro Kumagai², Keita Kobayashi², Akiko Hokura³, Yasumitsu Ogra¹
²Graduate School of Medical and Pharmaceutical Sciences, Chiba University, Japan; ³Nanodimensional Standards Group, National Institute of Advanced Industrial Science and Technology, Japan; ¹Department of Applied Chemistry, School of Engineering, Tokyo Denki University, Japan
P-55 Selenium toxicity accelerated by out-of-control response of Nrf2-xCT pathway
Koji Ueda, Akira Aoki, Yoshinori Okamoto, Hitodeto Jinno
Faculty of Pharmacy, Meijo University

P-56 Distribution of uranium in bone tissues by quantum beam-based elemental analyses with microbeam
Shino Homma Takeda, Kyoko Ayama, Yugo Kato, Haruko Yakumaru, Daisuke Ohhsawa, Rytaro Sato, Chihiro Uehara, Izumi Tanaka, Masakazu Oikawa, Oki Sekizawa, Kiyofumi Nitta, Hiroshi Ishihara
1National Institute of Radiological Sciences, National Institutes for Quantum and Radiological Science and Technology, 2Graduate School of Science and Engineering, Chiba University, 3Graduate School of Science, Chiba University, 4Japan Synchrotron Radiation Research Institute

P-57 Conditions for the addition of platinum hyperaccumulation in unicellular algae and speciation of platinum accumulated in algae
Masato Tokoro, Kazuhiro Kumagai, Akiko Hohkura
1Department of Materials Science and Engineering, Graduate School of Engineering, Tokyo Denki University, 2National Institute of Advanced Industrial Science and Technology

P-58 Fundamental study on the detection of uranium in bio-fluids: uranium detection and chemical form in serum
Akihiro Uehara, Rytaro Sato, Daisuke Ohsawa, Haruko Yakumaru, Chiya Numako, Oki Sekizawa, Kiyofumi Nitta, Izumi Tanaka, Hiroshi Ishihara, Shino Homma-Takeda
1National Institute of Radiological Sciences, National Institutes for Quantum Science and Technology, 2Department of Chemistry, Graduate School of Science, Chiba University, 3Institute for Quantum Medical Science, National Institutes for Quantum Science and Technology, 4Japan Synchrotron Radiation Research Institute

P-59 Analysis of selenium metabolites accumulated in callus of fern, Athyrium yokoscense
Akiko Hokura, Koutarou Matsui, Shota Yuzawa, Kazuaki Takahashi, Yasumitsu Ogra
1School of Engineering, Tokyo Denki University, 2Graduate School of Science and Engineering, Tokyo Denki University, 3Graduate School of Pharmaceutical Sciences, Chiba University

P-60 Lead increases susceptibility to ferroptosis by disrupting iron and selenium metabolism
Takayuki Hoshi, Satoru Shiina, Takashi Toyama, Yoshiro Saito
Laboratory of Molecular Biology and Metabolism, Graduate School of Pharmaceutical Sciences, Tohoku University

P-61 Thallium induces oxidative stress in hypothalamic neuronal cell line (GT1-7 cells)
Dai Mizuno, Masahiro Kawahara, Keiko Mizuno
1Faculty of Medicine, Yamagata University, 2Faculty of Pharmacy, Musashino University

P-62 Cadmium induces metallothionein expression in mouse thoracic aorta and perivascular adipose tissue
Yasuyuki Fujiiwara, Yayoi Tsuneoka, Tsutomu Takahashi, Yo Shinoda
Department of Environmental Health, School of Pharmacy, Tokyo University of Pharmacy and Life Sciences

P-63 Elemental distribution of essential elements in the sternum by micro-PIXE analysis
Yugo Kato, Kyoko Ayama, Haruko Yakumaru, Akihiro Uehara, Izumi Tanaka, Masakazu Oikawa, Shino Homma-Takeda
National Institute of Radiological Science, National Institutes for Quantum Science and Technology
P-64  Induction of a reactive sulfur-producing enzyme cystathionine gamma-lyase in cultured vascular endothelial cells exposed to arsenite
Tsutomu Takahashi1, Naoya Miyakawa1, Sumire Fuji1, Yayoi Tsuneoka1, Yo Shinoda1, Tomoya Fujie2,3,4, Chika Yamamoto1, Toshiyuki Kaji1, Yasuyuki Fujiwara1
1Department of Environmental Health, School of Pharmacy, Tokyo University of Pharmacy and Life Sciences, 2Department of Environmental Health, Faculty of Pharmaceutical Sciences, Tohoku University, 3Department of Environmental Health, Faculty of Pharmaceutical Sciences, Tokyo University of Science

P-65*  Mechanism of methylmercury toxicity reduction by the transcription factor TCF3
Himeka Ota1, Akari Matsushima1, Takashi Toyama2, Akira Naganuma1, Gi-Wook Hwang1,2
1Laboratory of Environmental and Health Sciences, Faculty of Pharmaceutical Sciences, Tohoku Medical and Pharmaceutical University, 2Laboratory of Molecular Biochemical Toxicology, Graduate School of Pharmaceutical Sciences, Tohoku University

P-66  Tri-substituted organotin compounds bind specifically to lipocalin family protein complement component 8gamma
Katsuya Yamamoto1,2, Daisuke Matsumaru1, Keishi Ishida1, Youhei Hiromori1,4, Satoshi Endo5, Hisamitsu Nagase1, Tsuyoshi Nakanishi1
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P-67  Construction of ionome database of Japanese wild plants and extraction of plant nutritional information
Takafumi Mizuno1, Daichi Kondo2, Hiroto Kasai3, Yoshinori Mura1, Atsushi Hashimoto1, Toshihiro Watanabe4
1Graduate School of Bioresources, Mie University, 2Faculty of Bioresources, Mie University, 3Department of Botany, National Museum of Nature and Science, 4Research Faculty of Agriculture, Hokkaido University

P-68  Geogenic arsenic and nickel exposure from rice consumption in Yangon Division, Myanmar: Health risk assessment
Kazuhiro Toyoda1,2, Aye Myint Myat Soe3, Aye Aye Mu3
1Section of Integrated Environmental Science, Faculty of Environmental Earth Science, Hokkaido University, 2Division of Environmental Science Development, Graduate School of Environmental Science, Hokkaido University, 3Department of Botany, Bago University, Bago, Myanmar

P-69  Development of on-chip sample injection system with a 6-port valve for micro-flow-injection analysis
Kazuhiro Morikata1, Hina Sato1, Kenji Morita1, Akihide Hemmi1, Hizuru Nakajima1, Atsushi Shoji1, Akio Yanagida1
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P-70*  Chrono-toxicity of cisplatin induced renal injury in mice
Hiroki Yoshioka1, Sarah Tominaga1, Masumi Suzuki1, Nobuhiko Miura1
1College of Pharmacy, Gifu University of Medical Science, 2Department of Neurotoxicology, Nagoya City University Graduate School of Medical Sciences, 3Department of Health Science, Yokohama University of Pharmacy

P-71  Simultaneous quantification of oligo-nucleic acids and ferritin nanocage by size-exclusion chromatography hyphenated to inductively coupled plasma mass spectrometry for developing drug delivery systems
Junko Yamazaki, Ippei Inoue, Akihiro Arakawa, Sachise Karakawa, Kazutoshi Takahashi, Akira Nakayama
Research Institute for Bioscience Products & Fine Chemicals, Ajinomoto Co., Inc.
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<td>Graduate School of Medical Life Science, Yokohama City University, Department of Chemistry, Keio University</td>
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<td>School of Chemistry and Biochemistry, Thapar Institute of Engineering and Technology, School of Chemistry and Biochemistry, Thapar Institute of Engineering and Technology, Patiala, India, Department of Microbiology, Marwadi University, Rajkot, India, Department of Biotechnology, Ritsumeikan University, Kusatsu, Japan, School of Energy and Environment, Thapar Institute of Engineering and Technology, Patiala, India</td>
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P-83* Targeting zinc-binding protein metallothionein in astrocytes for dopaminergic neuroprotection
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Department of Medical Neurobiology, Okayama University Graduate School of Medicine, Dentistry and Pharmaceutical Sciences

P-84* Marine environmental impact assessment technique for ecological effects of heavy metals using amphipod
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1Geological Survey of Japan, AIST; 2IDEA Consultants, Inc.

P-85* Tributyltin decreases lysosomal acidity and inhibits autophagic degradation
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P-86* Variations of anthropogenic Gadolinium, Lanthanum, and presence of iodine in wastewater from water-recycle plants in Sapporo city, Hokkaido, Japan
Zakia Aktar1, Kazuhiro Toyoda1, 2
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