

8:50-, April 17 (Thu)

Opening Remarks

Hozumi Motohashi (Department of Medical Biochemistry, Tohoku University Graduate School of Medicine)

9:00-11:15, April 17 (Thu)

Session 1

30th Anniversary of NRF2: Pioneering the Path Forward

Chairperson: Hozumi Motohashi (Department of Medical Biochemistry, Tohoku University Graduate School of Medicine)

9:00-9:25

S1-1 Keap1-Nrf2, mitochondrial stress, and aging: Adapting to environmental challenges

Ken Itoh

Hirosaki University Graduate School of Medicine

9:25-9:50

S1-2 NRF2 and STAT3 alliance accelerates breast cancer growth and progression

Su-Jung Kim¹, Nam-Chul Cho², Kwang Pyo Kim^{3,4}, Young-Joon Surh¹

¹College of Pharmacy, Seoul National University, ²Korea Chemical Bank, Korea Research Institute of Chemical Technology, ³Department of Applied Chemistry, Institute of Natural Science, Kyung Hee University, ⁴Department of Biomedical Science and Technology, Kyung Hee Medical Science Research Institute, Kyung Hee University

9:50-10:15

S1-3 Targeting NRF2 for therapy in neurodegeneration and in liver fibrosis

Antonio Cuadrado^{1,2}

¹Autonomous University of Madrid, ²Servatrix Biomed S.L.

10:15-10:40

S1-4 Regulation of KEAP1/NRF2 by electrophiles and protein-protein interaction inhibitors

Miroslav Novak¹, Sharadha Dayalan Naidu¹, Dina Dikovskaya¹, Terry W Moore², Albena T Dinkova-Kostova¹

¹University of Dundee School of Medicine, ²University of Illinois at Chicago

Redox Week 2025

April 17 (Thu)

10:40-11:15

S1-5
[Keynote] **The KEAP1-NRF2 pathway:
From molecular stress sensors to human disease**

Masayuki Yamamoto

Tohoku University, Tohoku Medical Megabank Organization

11:20-12:05, April 17 (Thu)

Lunch Seminar

Sponsored by: SHIMADZU CORPORATION

Chairperson: Takaaki Akaike (Tohoku University)

L1 **Insights into the microbiota-gut-brain axis from longevity research**

Yuji Naito

Department of Human Immunology and Nutrition Science, Kyoto Prefectural University of Medicine

12:10-14:10, April 17 (Thu)

Session 2

Sulfur and oxygen redox biology and medicine

Chairpersons: Christopher Harry Switzer (University of Leicester)
Martin Feelisch (University of Southampton)

12:10-12:35

S2-1 **Identification of druggable and redox vulnerabilities in cancer**

Liron Bar-Peled

Harvard Medical School

12:35-13:00

S2-2 **Sulfur metabolism at high altitude**

Martin Feelisch

University of Southampton

13:00-13:25

S2-3 Lysine N-pyrrolation is a carbonyl-derived protein modification associated with autoimmune diseases

Koji Uchida

Graduate School of Agricultural and Life Sciences, The University of Tokyo

13:25-13:50

S2-4 Reactive sulfur species in hypoxia: Chemistry, signalling and metabolism

Christopher Harry Switzer

University of Leicester

13:50-14:10

S2-5 Exploring the regulation and function of protein persulfidation with a new quantitative assay

Danny Schilling¹, Paraskevi Kritsiligkou², Uladzimir Barayeu³, Michael Müller¹, Christina Bebber⁴, Silvia Von Karstedt⁴, Frank Westermann¹, Aubry Miller¹, Tobias Dick¹

¹German Cancer Research Center (DKFZ), Heidelberg, Germany, ²University of Liverpool, Liverpool, UK, ³Max Planck for Polymer Research, Mainz, Germany, ⁴University of Cologne, Cologne, Germany

14:15-15:25, April 17 (Thu)

Session 3

NO and supersulfide in prokaryotes and plants

Chairperson: Tetsuro Matsunaga (Akita University / Tohoku University)

14:15-14:40

S3-1 Physiological nitro-oxidative stress during the ripening of pepper fruit: Implication of NO and H₂S

Francisco J Corpas

Department of Stress, Development and Signaling in Plants, Spanish National Research Council (CSIC), Spain

14:40-15:05

S3-2 Structural and functional analyses of the SUF protein complex involved in *de novo* iron-sulfur cluster biosynthesis

Josei Uchida¹, Misato Tsuji², Yumiko Motoyama¹, Takeshi Yokoyama², Yoshikazu Tanaka², Kei Wada¹

¹University of Miyazaki, ²Tohoku University

Redox Week 2025

April 17 (Thu)

15:05-15:25

S3-3 Supersulfide in photosynthetic organisms

Yasuhiro Ishimaru, Masaru Tsujii, Nobuyuki Uozumi

Department of Biomolecular Engineering Graduate School of Engineering/Tohoku University

15:30-17:55, April 17 (Thu)

Session 4

Supersulfide probe development and imaging

Chairpersons: Ming Xian (Brown University)

Hidehiko Nakagawa (Graduate School of Pharmaceutical Sciences,
Nagoya City University)

15:30-15:55

S4-1 Chemical tools for regulating reactive sulfur species

Ming Xian

Brown University

15:55-16:20

S4-2 Chemical tools and models for investigating reactive sulfur and selenium species

Michael Pluth, Keyan Li, Kaylin Fosnacht, Turner Newton

University of Oregon

16:20-16:45

S4-3 Genetically encoded fluorescent biosensor Persic for per-/polysulfides registration

Dmitry S Bilan^{1,2,3}

¹M.M. Shemyakin and Yu.A. Ovchinnikov Institute of Bioorganic Chemistry, Russian Academy of Sciences, Moscow, Russia, ²Pirogov Russian National Research Medical University, Moscow, Russia, ³Federal Center of Brain Research and Neurotechnologies, Federal Medical Biological Agency, Moscow, Russia

16:45-17:10

S4-4 Photocontrolled transfer of sulfane sulfur with caged compounds

Hidehiko Nakagawa, Mitsuyasu Kawaguchi

Graduate School of Pharmaceutical Sciences, Nagoya City University

17:10-17:35

S4-5 **Development of fluorogenic probes for supersulfide and H₂S and their application to inhibitor screening**

Kenjiro Hanaoka

Graduate School of Pharmaceutical Sciences, Keio University

17:35-17:55

S4-6 **Polymeric material approaches for controlled delivery of bioactive sulfur species**

Urara Hasegawa

Pennsylvania State University

19:00-, April 17 (Thu)

Welcome Reception @Westin Sendai

8:40-11:10, April 18 (Fri)

Session 5

Redox biology of chalcogens and lipid peroxidation

Chairpersons: John P. Toscano (Department of Chemistry, Johns Hopkins University)
Yoshiro Saito (Graduate School of Pharmaceutical Sciences, Tohoku University)

8:40-9:05

S5-1 Chemical rationale for the biological properties and utility of polysulfur species

Jon M Fukuto

Sonoma State University

9:05-9:30

S5-2 Hydropersulfides attenuate doxorubicin-induced cardiotoxicity while boosting its anticancer action: Exploring the role of cellular redox homeostasis

John P. Toscano

Department of Chemistry, Johns Hopkins University

9:30-9:55

S5-3 Glutaredoxin-dependent differentiation and survival in the brain

Carsten Berndt¹, Tim Prozorovski¹, Leonie Thewes¹, Gereon Poschmann¹,
Christina Wilms¹, Lars Bräutigam², Guido Reifenberger¹, Benjamin Odermatt³,
Orhan Aktas¹

¹Heinrich-Heine University Duesseldorf, Germany, ²Karolinska Institutet, Stockholm, Sweden, ³University of Bonn, Germany

9:55-10:20

S5-4 Redox regulation triad: Molecular interactions of selenium, supersulfide, and iron

Yoshiro Saito

Graduate School of Pharmaceutical Sciences, Tohoku University

10:20-10:45

S5-5 Lysosomal lipid peroxidation triggers ferroptosis induction

Ken-ichi Yamada

Faculty of Pharmaceutical Sciences, Kyushu University

10:45-11:10

S5-6 Evolutionarily conserved cyclo-octasulfur prevents ferroptosis in mammals

Uladzimir Barayeu^{1,2,†,*}, Seiryō Ogata^{1,†}, Tsuyoshi Takata^{1,†}, Minkyung Jung^{1,†}, Tetsuro Matsunaga^{1,3}, Mike Lange⁴, Masanobu Morita¹, Yuka Unno¹, Saber Boushehri^{2,5}, Tomoaki Ida¹, Akira Nishimura⁶, Lorenzo Catti⁷, Takayuki Shimizu⁸, Ryo Ushioda⁹, Takakazu Nakabayashi¹⁰, Seji Asamitsu^{1,11}, Kazuki Fusegawa^{1,11}, Takashi Suzuki¹², Takanori Ishida¹³, Naoko Tanda¹⁴, Yasuo Watanabe¹⁵, Ryo Yamaguchi¹⁶, Fumiko Yano¹⁷, Mieko Arisawa¹⁸, Albert Van Der Vliet¹⁹, Dennis Stuehr²⁰, Frauke Gräter^{2,5}, Camilo Aponte-Santamaría^{2,5}, James A. Olzmann⁴, Marcus Conrad^{21,22}, Tobias P. Dick^{23,24}, Hozumi Motohashi²⁵, Michito Yoshizawa⁷, Takaaki Akaike^{1,16,*}

¹Department of Environmental Medicine and Molecular Toxicology, Tohoku University Graduate School of Medicine, Sendai, Japan, ²Max-Planck-Institute for Polymer Research, Mainz, Germany, ³Center for Integrated Control, Epidemiology and Molecular Pathophysiology of Infectious Diseases, Akita University, Akita, Japan, ⁴Departments of Molecular and Cell Biology and Nutritional Sciences and Toxicology, University of California, Berkeley, CA, USA, ⁵Heidelberg Institute for Theoretical Studies, Schloß-Wolfsbrunnenweg 35, Heidelberg, Germany, ⁶Institute for Research Initiatives, Nara Institute of Science and Technology, Nara, Japan, ⁷Laboratory for Chemistry and Life Science, Institute of Integrated Research, Institute of Science Tokyo, Yokohama, Japan, ⁸Faculty Division of Natural Sciences, Nara Women's University, Nara, Japan, ⁹Department of Molecular Biosciences, Faculty of Life Sciences, Kyoto Sangyo University, Kyoto, Japan, ¹⁰Bio-Structural Chemistry, Graduate School of Pharmaceutical Sciences, Tohoku University, Sendai, Japan, ¹¹Department of Surgery, Tohoku University Graduate School of Medicine, Sendai, Japan, ¹²Department of Anatomic Pathology, Tohoku University Graduate School of Medicine, Sendai, Japan, ¹³Department of Breast and Endocrine Surgical Oncology, Graduate School of Medicine, Tohoku University, Sendai, Japan, ¹⁴Division of Preventive Dentistry, Graduate School of Dentistry, Tohoku University, Sendai, Japan, ¹⁵Department of Pharmacology, Showa Pharmaceutical University, Machida, Japan, ¹⁶Shimadzu × Tohoku University Supersulfides Life Science Co-creation Research Center, ¹⁷Department of Biochemistry, Showa University School of Dentistry, Tokyo, Japan, ¹⁸Department of Bioscience and Biotechnology, Graduate School of Bioresource and Bioenvironmental Sciences, Kyushu University, Fukuoka, Japan, ¹⁹Department of Pathology and Laboratory Medicine, Robert Larner M.D., College of Medicine, University of Vermont, Burlington, VT, USA, ²⁰Department of Inflammation and Immunity, Lerner Research Institute, The Cleveland Clinic, Cleveland, Ohio, USA, ²¹Institute of Metabolism and Cell Death, Molecular Targets and Therapeutics Center, Helmholtz Munich, Neuherberg, Germany, ²²Translational Redox Biology, Technical University of Munich (TUM), TUM Natural School of Sciences, Garching, Germany, ²³Division of Redox Regulation, German Cancer Research Center (DKFZ), Heidelberg, Germany, ²⁴Faculty of Biosciences, Heidelberg University, Heidelberg, Germany, ²⁵Department of Medical Biochemistry, Tohoku University Graduate School of Medicine, Sendai, Japan

Redox Week 2025

April 18 (Fri)

11:10-12:00, April 18 (Fri)

Opening Ceremony: Center for Supersulfide Research

Remarks from Distinguished Guests

Mizue Shiomi (Director-General, Research Promotion Bureau, MEXT)

Teiji Tominaga (President, Tohoku University)

Naoto Ishi (Dean, Tohoku University Graduate School of Medicine)

Yasunori Yamamoto (President, Shimadzu Corporation)

12:10-12:55, April 18 (Fri)

Lunch Seminar

Sponsored by: JAPAN BIOSCIENCES CO., LTD.

Chairperson: Fan-Yan Wei (IDAC, Tohoku University)

L2 Development of next generation metabolomics technologies

Takeshi Bamba

Medical Institute of Bioregulation, Kyushu University

13:10-15:20, April 18 (Fri)

Memorial Joint Symposium

University for International Research Excellence, Center for
Supersulfide Research & MEXT/JSPS Research Projects:
G-ReXS & Transformation Research Area

Chairperson: Hozumi Motohashi (Department of Medical Biochemistry, Tohoku
University Graduate School of Medicine)

13:10-13:20

Remarks from Distinguished Guest

Tsuyoshi Sugino (*President, Japan Society for the Promotion of Science*)

13:20-14:00

M1 Redox signal regulation by chalcogen supermolecules

[Keynote]

Takaaki Akaike

Department of Redox Molecular Medicine, Tohoku University Graduate School of Medicine

14:00-14:30

M2
[Keynote]

Understanding thiol-based redox switches: Where do we stand?

Tobias Peter Dick

German Cancer Research Center (DKFZ)

14:30-14:55

M3

Redox sensing and signaling in the cardiovascular system

Philip Eaton

Queen Mary University of London

14:55-15:20

M4

Probing and targeting the selenoprotein thioredoxin reductase 1 (TXNRD1) for modulated redox control of cell function

Elias S.J. Arnér^{1,2}

¹*Division of Biochemistry, Department of Medical Biochemistry and Biophysics, Karolinska Institutet, Stockholm, Sweden,* ²*Department of Selenoprotein Research, National Institute of Oncology, Budapest, Hungary*

15:25-16:10, April 18 (Fri)

Plenary Lecture

Chairperson: Hozumi Motohashi (Department of Medical Biochemistry, Tohoku University Graduate School of Medicine)

PL1

Ferroptosis as a pharmacologically tractable form of cell death to prevent neurodegenerative disease

Marcus Conrad^{1,2}

¹*Helmholtz Zentrum München, Institute of Metabolism and Cell Death,* ²*Technical University of Munich (TUM), Translational Redox Biology*

Redox Week 2025

April 18 (Fri)

16:20-18:00, April 18 (Fri)

Session 6

Ferroptosis in chalcogen biology

Chairpersons: Ken-ichi Yamada (Faculty of Pharmaceutical Sciences, Kyushu University)

Eikan Mishima (Helmholtz Munich / Tohoku University, Graduate School of Medicine)

16:20-16:45

S6-1 Unraveling selenium metabolism: Novel pathways and transport mechanisms

Jose Pedro Friedmann Angeli

University of Würzburg

16:45-17:10

S6-2 PRDX6 dictates ferroptosis sensitivity by directing cellular selenium utilization

Eikan Mishima^{1,2}, Junya Ito³, Takashi Toyama⁴, Yoshiro Saito⁴, Carsten Berndt⁵, Gereon Poschmann⁵, Marcus Conrad¹

¹Helmholtz Munich, ²Tohoku University, Graduate School of Medicine, ³Tohoku University, Graduate School of Agricultural Science, ⁴Tohoku University, Graduate School of Pharmaceutical Sciences, ⁵Heinrich-Heine University Düsseldorf

17:10-17:35

S6-3 The paradox of selenium in ferroptosis regulation

Namgyu Lee¹, Ihyeon Ahn*¹, Sung Jin Park*^{1,2,3}, Brennon Berard³, Tenzin Tseyang³, Sena Atici⁵, Inhwan Yoo¹, Heather R. Keys⁴, Paul L. Greer³, Jose Pedro Friedmann Angeli⁵, Lenny Winkel⁶, Jessica B. Spinelli³, Dohoon Kim#³, Namgyu Lee#¹

¹Dankook University, South Korea, ²Sungkyunkwan University, South Korea, ³University of Massachusetts Chan Medical School, USA, ⁴Whitehead Institute for Biomedical Research, USA, ⁵University of Würzburg, Germany, ⁶ETH Zurich, Swiss

17:35-18:00

S6-4 Triaptosis - Oxidative cell death and cancer therapy

Lloyd Trotman

Cold Spring Harbor Laboratory

19:00-, April 18 (Fri)

Banquet (for invited only) @Westin Sendai

8:40-10:40, April 19 (Sat)

Session 7

Sulfide and supersulfides biosyntheses and metabolisms

Chairpersons: Péter Nagy (National Institute of Oncology / University of Veterinary Medicine / University of Debrecen)
Guenter Schwarz (University of Cologne)

8:40-9:10

S7-1 Sulfide signaling: From biomolecules to behavior

[Keynote]

Ruma Banerjee

University of Michigan

9:10-9:35

S7-2 Realigned sulfur metabolism is crucial in BRAF V600E-targeted therapy resistance in melanoma

Péter Nagy^{1,2,3}, Klaudia Borbényi-Galambos^{1,4}, Katalin Erdélyi¹, Tamás Ditrói¹, Eszter Petra Jurányi^{1,5}, Noémi Szántó¹, Edward Eric Schmidt^{6,7}, Dorottya Garai^{1,4}, Mihály Cserepes⁸, Gabriella Liskay⁹, Erika Tóth¹⁰, József Tóvári⁸

¹Department of Molecular Immunology and Toxicology and the National Tumor Biology Laboratory, National Institute of Oncology; Budapest, Hungary, ²Department of Anatomy and Histology, HUN-REN-UVMB Laboratory of Redox Biology, University of Veterinary Medicine; Budapest, Hungary, ³Chemistry Institute, University of Debrecen; Debrecen, Hajdú-Bihar County, Hungary, ⁴Kálmán Laki Doctoral School, University of Debrecen; Debrecen, Hajdú-Bihar County, Hungary, ⁵Semmelweis University Doctoral School, Semmelweis University; Budapest, Hungary, ⁶Department of Anatomy and Histology, HUN-REN-UVMB Laboratory of Redox Biology, University of Veterinary Medicine; Budapest, Hungary, ⁷Department of Microbiology and Cell Biology, Montana State University; Bozeman, Montana, United States of America, ⁸Department of Experimental Pharmacology and the National Tumor Biology Laboratory, National Institute of Oncology; Budapest, Hungary, ⁹Department of Dermatology and the National Tumor Biology Laboratory, National Institute of Oncology; Budapest, Hungary, ¹⁰Department of Surgical and Molecular Pathology and the National Tumor Biology Laboratory, National Institute of Oncology; Budapest, Hungary

9:35-10:00

S7-3 Sulfite oxidase deficiency protects from ROS by S-sulfocysteine-dependent GSH synthesis

Guenter Schwarz^{1,6}, Anna Theresa Mellis^{1,6}, Chun-Yu Fu^{1,6}, Michaela N. Höhne-wiechman¹, Mami Sato², Lianne J.H.C. Jacobs¹, Tim Bartsch¹, Hanna Küpper¹, Alexander Kaczmarek¹, Besarta Thaqi^{1,3}, Hamid Kashkar^{3,4}, Pedro Friedmann Angeli², Marcus Conrad⁵, Jan Riemer^{1,4}

¹University of Cologne, Department of Chemistry and Biochemistry, ²University of Wuerzburg, ³Institute of Microbiology, Medical Faculty, University of Cologne, ⁴Cologne Excellence Cluster for Aging and Aging-Associated Diseases (CECAD), University of Cologne, ⁵Helmholtz Zentrum München, ⁶Center for Molecular Medicine Cologne (CMMC), University of Cologne

10:00-10:20

S7-4 Redefining the genetic code enables recombinant selenoprotein expression in engineered E. coli strains, including a fully synthetic variant

Qing Cheng¹, Elias S.J. Arnér^{1,2}

¹Division of Biochemistry, Department of Medical Biochemistry and Biophysics, Karolinska Institutet, Stockholm, Sweden, ²Department of Selenoprotein Research, National Institute of Oncology, Budapest, Hungary

10:20-10:40

S7-5 Lipid droplet quality control: Ferroptosis Suppressor Protein 1 protects stored neutral lipids from oxidative damage

Mike Lange^{1,2}, James A. Olzmann^{1,2}

¹Department of Nutritional Sciences and Toxicology, University of California, Berkeley, Berkeley, CA, USA, ²Department of Molecular and Cell Biology, University of California, Berkeley, Berkeley, CA, USA

10:45-11:45, April 19 (Sat)

Session 8

Roundtable, Sulfide Terminology

Chairpersons: Uladzimir Barayeu (Max Planck Institute for Polymer Research)
Tobias Peter Dick (German Cancer Research Center (DKFZ))

Panelist:

Takaaki Akaike

Tohoku University

Uladzimir Barayeu

Max Planck Institute for Polymer Research

Tobias Peter Dick

German Cancer Research Center (DKFZ)

Christopher Harry Switzer

University of Leicester

11:50-12:35, April 19 (Sat)

Lunch Seminar

Sponsored by: Philip Morris Japan Ltd.

Chairperson: Motohiro Nishida (Kyushu University, Graduate School of Pharmaceutical Sciences)

L3-1 **Designing a smoke-free future: Evidence supporting the Tobacco Heating System by PMI**

Norihisa Sugimoto

Scientific External Affairs, Philip Morris Japan

L3-2 **Reconsidering "nicotine" from a pathophysiological perspective**

Mami Noda

Adjunct Professor / Xi'an Jiaotong University

12:45-13:45, April 19 (Sat)

Oral Session 1

Chairperson: Takashi Toyama (Tohoku University)

12:45-13:00

01-1 **Glutathione sensor neutral sphingomyelinase 2-dependent activation of transcription factor NRF2 via ceramide/PKC ζ /casein kinase 2 axis**

Tetsuro Ishii¹, Giovanni E Mann²

¹School of Medicine, University of Tsukuba, Japan, ²School of Cardiovascular and Metabolic Medicine & Sciences, King's College London, UK

13:00-13:15

01-2 **Single-molecule protein functional analysis for understanding pathological protein activities at proteoform levels**

Toru Komatsu¹, Mayano Minoda¹, Yasuteru Urano^{1,2}

¹Graduate School of Pharmaceutical Sciences, The University of Tokyo, ²Graduate School of Medicine, The University of Tokyo

Redox Week 2025

April 19 (Sat)

13:15-13:30

01-3 Endoplasmic reticulum-associated degradation system mediator, selenoprotein S/K can control the cellular localization of NF-E2-p45 related factor 1

Goki Yamada^{1,2,3}, Tomoaki Hirakawa^{1,2,3}, Marino Kita^{1,2}, Hanae Takami^{1,2}, Nozomi Tanaka¹, Tadayuki Tsujita^{1,2,3}

¹Laboratory of Biochemistry, Faculty of Agriculture, Saga University, ²Graduate School of Advanced Health Sciences, Saga University, ³The United Graduate School of Agricultural Sciences, Kagoshima University

13:30-13:45

01-4 Effects of in utero oxidative stress and redox regulation in cardiac development

Taylor Alexis Covington^{1,2,3}, Fotios Spyropoulos², Amanda Smythers^{1,3}, Jonathan Petrocelli^{1,3}, Markus Waldeck-Weiermair², Nils Burger^{1,3}, Apabrita Das², Ruby Guo², Edward Chouchani^{1,3}, Thomas Michel²

¹Department of Cell Biology, Harvard Medical School, Boston, MA, USA, ²Department of Medicine, Brigham and Women's Hospital, Boston, MA, USA, ³Department of Cancer Biology, Dana-Farber Cancer Institute, Boston, MA, USA

13:45-14:35, April 19 (Sat)

Poster Session

14:35-15:20, April 19 (Sat)

Oral Session 2

Chairperson: Eikan Mishima (Helmholtz Munchen/Tohoku University)

14:35-14:50

02-1 Phenotype analysis of cartilage-specific GPx4 KO mice and mutation of metaphyseal dysplasia patients

Hirota Imai

School of Pharmaceutical Sciences, Kitasato University

14:50-15:05

02-2 Methionine metabolism links with phospholipid and glutamine metabolism to drive ferroptosis

Eun-Woo Lee^{1,2}

¹Metabolic Regulation Research Center, Korea Research Institute of Bioscience and Biotechnology (KRIBB), ²Department of Functional Genomics, University of Science and Technology (UST)

15:05-15:20

02-3 Breath biomarkers for monitoring lipid peroxidation and ferroptosis in vivo

Yuta Matsuoka

Kyoto University

15:25-17:30, April 19 (Sat)

Session 9

Redox signaling in inflammation and aging

Chairpersons: Albert Van Der Vliet (University of Vermont)

Tomohiro Sawa (Department of Microbiology, Graduate School of Medical Sciences, Kumamoto University)

15:25-15:50

S9-1 Bromine: A critical element in oxidative extracellular matrix remodeling in health and disease

Albert Van Der Vliet

University of Vermont

15:50-16:15

S9-2 Mechanistic insights into reactive sulfur species mediated protection from inflammatory cell death

Moran Benhar

Technion-Israel Institute of technology

16:15-16:40

S9-3 Regulation of innate immune and inflammatory responses by supersulfides

Tomohiro Sawa

Department of Microbiology, Graduate School of Medical Sciences, Kumamoto University

16:40-17:05

S9-4 Caspase-2 in oxidative stress, ageing and cancer

Sharad Kumar^{1,2}, Yoon Lim¹, Jack Scanlan¹, Emma Mclennan³, Dylan Debellis¹, Michael Katchner¹, Sonia Shah¹, Chiaki Takahashi⁴, Mark Febbraio³, Loretta Dorstyn¹

¹Centre for Cancer Biology, University of South Australia, Adelaide, SA, Australia, ²University of Adelaide, North Terrace, Adelaide, SA, Australia, ³Monash Institute of Pharmaceutical Sciences, Parkville, VIC, Australia, ⁴Cancer Research Institute, Kanazawa University, Kanazawa, Japan

17:05-17:30

S9-5 Roles of supersulfides in airway inflammation and T-cell activation

Mitsuhiro Yamada

Department of Respiratory Medicine, Tohoku University Graduate School of Medicine

17:35-18:50, April 19 (Sat)

Oral Session 3

Chairperson: Masanobu Morita (Tohoku University)

17:35-17:50

O3-1 Heme bound to the bacterial transcription factor SqrR/ YgaV catalyzes the oxygen-dependent conversion of H₂S to supersulfide to control gene expression

Shinji Masuda, Ryoma Iwata

Department of Life Science and Technology, Institute of Science Tokyo

17:50-18:05

O3-2 Sulfane sulfur of glutathione trisulfide (GSSSG) is incorporated into cells

Tomooki Ida¹, Seiryu Ogata¹, Jun Yoshitake¹, Masanobu Morita¹, Tsuyoshi Takata¹, Tetsuro Matsunaga^{1,2}, Minkyung Jung¹, Miki Maemura^{3,4}, Yoichi Miyamoto⁵, Fumiko Yano⁵, Takaaki Akaike¹

¹Department of Environmental Medicine and Molecular Toxicology, Tohoku University Graduate School of Medicine, ²Center for Integrated Control, Epidemiology and Molecular Pathophysiology of Infectious Diseases, Akita University, ³Department of Biochemistry, Graduate School of Dentistry, Showa University, ⁴Department of Oral and Maxillofacial Surgery, Graduate School of Dentistry, Showa University, ⁵Faculty of Arts and Sciences at Fujiyoshida, Showa University

18:05-18:20

03-3 *Cyclo*-octa-sulfur facilitates energy metabolism in mitochondria

Tetsuro Matsunaga^{1,2}, Uladzimir Barayeu³, Masanobu Morita², Seiryu Ogata², Minkyung Jung², Tianli Zhang¹, Tsuyoshi Takata², Michito Yoshizawa⁴, Hozumi Motohashi⁵, Takaaki Akaike²

¹Center for Integrated Control, Epidemiology and Molecular Pathophysiology of Infectious Diseases, Akita University, ²Department of Environmental Medicine and Molecular Toxicology, Tohoku University Graduate School of Medicine, ³Max-Planck-Institute for Polymer Research, ⁴Laboratory for Chemistry and Life Science, Institute of Innovative Research, Tokyo Institute of Technology, ⁵Department of Medical Biochemistry, Tohoku University Graduate School of Medicine

18:20-18:35

03-4 Development of novel sulfur reagents for the controlled chemical synthesis of supersulfides

Tsubasa Inokuma, Masaki Kobayashi, Yuki Iwasa, Mako Nishigaki, Ken-ichi Yamada
Graduate School of Pharmaceutical Sciences, Tokushima University

18:35-18:50

03-5 Cysteine persulfidation in the rhodanese-like sulfurtransferase ExtH from *Geobacter sulfurreducens* PCA

Aoto Kudo¹, Daiki Fujita¹, Masao Inoue², Riku Aono¹, Anna Ochi¹, Hisaaki Mihara¹
¹Coll. Life Sci., Ritsumeikan Univ., ²R-GIRO, Ritsumeikan Univ.

Redox Week 2025

April 20 (Sun)

8:40-10:45, April 20 (Sun)

Session 10

Mitochondria and inter-organellar redox biology (IDAC session)

Chairpersons: Fan-Yan Wei (IDAC, Tohoku University)
Fumito Ichinose (Massachusetts General Hospital / Harvard Medical School)

8:40-9:05

S10-1 Mitochondrial radical stress signature and aging

Fan-Yan Wei

IDAC, Tohoku University

9:05-9:30

S10-2 Supersulfide-mediated mitochondria quality control and cardiac stress resistance

Motohiro Nishida^{1,2,3}

¹Kyushu University, Graduate School of Pharmaceutical Sciences, ²National Institute for Physiological Sciences & Exploratory Research Center on Life and Living Systems, National Institutes of Natural Sciences, ³SOKENDAI

9:30-9:55

S10-3 Redox-mediated maintenance of endoplasmic reticulum homeostasis

Ryo Ushioda^{1,2}

¹Faculty of Life Sciences, Kyoto Sangyo University, ²Institute for Protein Dynamics, Kyoto Sangyo University

9:55-10:20

S10-4 Role of hypoxia and sulfur metabolism in mitochondrial diseases

Fumito Ichinose

Massachusetts General Hospital / Harvard Medical School

10:20-10:45

S10-5 Integrating redox signaling, mitochondrial dynamics and cell metabolism: Drivers of angiogenesis in peripheral arterial disease

Masuko Ushio-Fukai

Medical College of Georgia at Augusta University

10:50-12:05, April 20 (Sun)

Oral Session 4

Chairperson: Hiroki Sekine (Tohoku University Graduate School of Medicine)

10:50-11:05

04-1 Supersulfide synthesis in mitochondria is essential for mitochondrially-encoded protein expression

Shohei Murakami¹, Ryutaro Komori¹, Masanobu Morita², Tomoaki Ida²,
Takaaki Akaike², Hozumi Motohashi¹

¹Department of Medical Biochemistry, Tohoku University Graduate School of Medicine, ²Department of Environmental Medicine and Molecular Toxicology, Tohoku University Graduate School of Medicine

11:05-11:20

04-2 Supersulfide-based redox modification of Drp1 has critical role in cardiac stress tolerance and mitochondrial quality control

Akiyuki Nishimura¹, Xiaokang Tang¹, Yuri Kato², Motohiro Nishida^{1,2}

¹Division of Cardiocirculatory Signaling, National Institute for Physiological Sciences, ²Graduate School of Pharmaceutical Sciences, Kyushu University

11:20-11:35

04-3 New roles of organelle-mitochondria contacts

Isshin Shiiba

Gakushuin University

11:35-11:50

04-4 Supersulfide controls intestinal inflammation by suppressing CD4⁺ T cell proliferation

Shunichi Tayama¹, Yuya Kitamura¹, Kyoga Hiraide¹, Hibiki Suzuki¹, Jing Li¹,
Ziying Yang¹, Ryoji Mitsuwaka¹, Akihisa Kawajiri¹, Kosuke Sato¹, Taku Nakai^{2,3},
Yuko Okuyama¹, Tadahisa Numakura⁴, Mitsuhiro Yamada⁴, Tomoaki Ida⁵,
Masanobu Morita⁶, Takeshi Kawabe¹, Takaaki Akaike⁶, Naoto Ishii¹

¹Department of Microbiology and Immunology, Tohoku University Graduate School of Medicine, ²Applied Oxygen Physiology Project, New Industry Creation Hatchery Center, Tohoku University, ³Department of Oxygen Biology, Tohoku University Graduate School of Medicine, ⁴Department of Respiratory Medicine, Tohoku University Graduate School of Medicine, ⁵Organization for Research Promotion, Osaka Metropolitan University, ⁶Department of Environmental Medicine and Molecular Toxicology, Tohoku University Graduate School of Medicine

11:50-12:05

04-5 Biocatalytic generation of persulfides and hydrogen sulfide for modulating antioxidant and anti-inflammatory responses

Simran M. Gupta, Suman Manna, Prerona Bora, Arnab Chakraborty, T. Anand Kumar, Siddhesh S. Kamat, Harinath Chakrapani

Indian Institute of Science Education and Research, Pune

12:05-12:55, April 20 (Sun)

Public Lecture (in Japanese)

12:55-15:15, April 20 (Sun)

Session 11

Thiol and chalcogen biology in redox medicine

Chairpersons: Rakesh P Patel (University of Alabama at Birmingham)
Edward E Schmidt (University of Veterinary Medicine Budapest /
Montana State University)

12:55-13:20

S11-1 Cystine C-S bond cleavage fuels cysteine production under disulfide reductase deficiency

Edward E Schmidt^{1,2}, Colin G Miller², Eszter Petra Jurányi^{3,4}, Sydney A Austad², Tamás Ditrói³, Zoe M Seaford², Sang Jun Yoon⁵, Reed C Noyd², Yun Pyo Kang⁵, Justin R Prigge², Vivien Csikós¹, Dóra Kővári¹, Gina M Denicola⁵, Péter Nagy^{1,3,6}

¹University of Veterinary Medicine Budapest, Hungary; ²Montana State University, USA, ³Montana State University, Bozeman, Montana, USA, ⁴National Institute of Oncology, Budapest, Hungary, ⁵Semmelweis University Doctoral College, Molecular Medicine Division, Budapest, Hungary, ⁶Department of Metabolism & Physiology, H. Lee Moffitt Cancer Center and Research Institute; Tampa, Florida, USA, ⁶Chemistry Institute, University of Debrecen; Debrecen, Hungary

13:20-13:45

S11-2 Hydrogen peroxide increases red blood cell surface high mannose N-glycans; Mechanistic insights and functional implications

Rakesh P Patel, Laxman Poudel, Alexandria Hernandez-Nicholls, Karina Ricart, Felipe Vendrame, Morgan Locy

University of Alabama at Birmingham

13:45-14:10

S11-3 Utilising tethered biosensors to uncover redox heterogeneity

Paraskevi Kritsiligkou¹, Tobias Dick²

¹The University of Liverpool, ²German Cancer Research Center (DKFZ)

14:10-14:35

S11-4 Polysulfides mediate multiple types of protein modification and benefits tumor growth

Huaiwei Liu¹, Qingda Wang¹, Yuping Xin¹, Luying Xun²

¹Shandong University, ²Washington State University

14:35-14:55

S11-5 Genome-wide iron-induced ferroptosis screen uncovers PRDX6 as a novel selenium carrier protein

Hiroaki Fujita

Department of Molecular and Cellular Physiology, Graduate School of Medicine, Kyoto University

14:55-15:15

S11-6 Regulation of signal transduction by diverse chemical modifications via reactive sulfur species

Yosuke Funato, Ren Nakae, Osamu Hashizume, Hiroaki Miki

Laboratory of Biorecognition Chemistry, Department of Synthetic Chemistry and Biological Chemistry, Graduate School of Engineering, Kyoto University

15:15-15:45, April 20 (Sun)

Poster Session

15:45-17:05, April 20 (Sun)

Rising Star Session

Chairperson: Tomohiro Sawa (Department of Microbiology, Graduate School of Medical Sciences, Kumamoto University)

15:45-16:05

RS1 Understanding polysulfide-mediated papain inhibition and differentiating between disulfide vs persulfide formation

Meg Shieh¹, Anna Y Chung¹, Stephen Lindahl¹, Melany Veliz², Charlotte A Bain¹, Ming Xian¹

¹Department of Chemistry, Brown University, ²Department of Molecular Biology, Cell Biology, and Biochemistry, Brown University

16:05-16:25

RS2 Mitochondrial targeting by conjugated fatty acids drives ferroptosis

Yusuke Hirata, Atsushi Matsuzawa

Lab. of Health Chem., Grad. Sch. of Pharmaceut. Sci., Tohoku Univ.

16:25-16:45

RS3 Supersulfide-modulated antioxidative activity of human serum albumin: A novel approach for acute kidney injury treatment

Mayumi Ikeda-Imafuku¹, Yu Ishima², Tomohiro Sawa³, Takaaki Akaike⁴,
Toru Maruyama³, Masaki Otagiri⁵, Kazunori Kadota¹

¹Wakayama Medical University, ²Kyoto Pharmaceutical University, ³Kumamoto University, ⁴Tohoku University, ⁵Sojo University

16:45-17:05

RS4 OxiT: A comprehensive stoichiometric landscape of cysteine oxidation during T cell activation

Haruna Takeda¹, Lijian Wu², Kai W Wucherpfennig², Edward T Chouchani¹

¹Department of Cancer Biology, Dana-Farber Cancer Institute, ²Department of Cancer Immunology and Virology, Dana-Farber Cancer Institute

17:10-18:50, April 20 (Sun)

Session 12

Supersulfide in cardiovascular disease regulation

Chairpersons: Melanie Madhani (University of Birmingham)

Adrian Hobbs (Queen Mary University of London)

17:10-17:35

S12-1 Manipulating persulfides in cardiovascular health and disease from bench to bedside

Melanie Madhani

University of Birmingham

17:35-18:00

S12-2 The role of endothelial and red blood cell eNOS in renal function and blood pressure regulation

Anthea Lobue¹, Denada Arjfaï², Sophia K Heuser¹, Junjie Li¹, John O. Lundberg³, Mattias Carlström³, Johannes Stegbauer³, Miriam M Cortese-Krott¹

¹Myocardial Infarction Research Laboratory, Clinic of Cardiology, Pneumology and Angiology, Heinrich-Heine-University of Düsseldorf, ²Clinic of Nephrology, University Clinic Düsseldorf, ³Department of Physiology and Pharmacology, Karolinska Institutet, Stockholm

18:00-18:25

S12-3 Interplay between ROS, endothelial metabolism, and copper transport protein in vascular inflammatory disease

Tohru Fukai^{1,2}

¹Medical College of Georgia at Augusta University, ²Charlie Norwood Veterans Affairs Medical Center

18:25-18:50

S12-4 Hydrogen sulfide therapy for cardiometabolic heart failure

David Josphe Lefer¹, Mahmoud Elbatreek¹, Huijing Xia², Timothy D. Allerton³, Xiaoman Yu⁴, Jake E Doiron², Zhen Li⁴, Ming Xian⁵, Traci Taylor Goodchild¹

¹Cedars-Sinai Medical Center, ²LSU Health Sciences Center-New Orleans, ³Pennington Biomedical Research Center, ⁴China Pharmaceutical University, ⁵Brown University

19:30-, April 20 (Sun)

Get-together @Kokubuncho "Back Page Bar"

8:40-10:25, April 21 (Mon)

Oral Session 5

Chairperson: Yusuke Hirata (Tohoku University)

8:40-8:55

05-1 Label-free observation of supersulfides and their metabolic reactions in a single cell using Raman imaging

Takakazu Nakabayashi, Keisuke Koga, Lisa Kageyama, Reona Tobita, Shinya Tahara, Shinji Kajimoto

Tohoku University

8:55-9:10

05-2 Critical roles of cysteine residues in misfolding of Cu/Zn-superoxide dismutase associated with neurodegenerative diseases

Yoshiaki Furukawa

Keio University

9:10-9:25

05-3 Interdisciplinary sciences leading to utilization of carbon resources by using organosulfur compounds

Atsushi Tahara

Frontier Research Institute for Interdisciplinary Sciences / Tohoku University

9:25-9:40

05-4 Design, synthesis, and biological activity of organosulfur/selenium compounds

Wei Han, Mieko Arisawa

Faculty of Agriculture, Kyushu University

9:40-9:55

05-5 Regulation of cysteine persulfide incorporation by CARS and its impact on protein synthesis

Sernur Sena Yildiz¹, Debora Monego¹, Andreas Walther², Takaaki Akaike³, Frauke Graeter^{1,4}, Uladzimir Barayeu^{1,2}

¹Max Planck Institute for Polymer Research, ²Johannes Gutenberg University of Mainz, ³Tohoku University, ⁴University of Heidelberg

9:55-10:10

05-6 Analysis of metabolic dynamics of supersulfides in hibernating golden hamsters

Shingo Kasamatsu¹, Chiharu Miura¹, Airi Nishida¹, Yoshifumi Yamaguchi², Hideshi Ihara¹

¹Dept of Biol. Sci., Grad. Sch. of Sci., Osaka Metropolitan Univ., ²Inst. Low Temp. Sci., Hokkaido Univ.

10:10-10:25

05-7 Exploring the role of supersulfides in tumour hypoxia

Ethan James York¹, Christopher Switzer¹, Catrin Pritchard¹, Shingo Kasamatsu², Jon Toscano³, Vinayak Khodade³, Ming Xian⁴

¹University of Leicester, ²Osaka Metropolitan University, ³Johns Hopkins University, ⁴Brown University

10:35-12:40, April 21 (Mon)

Session 13

Redox biology in cancer and chemotherapeutics

Chairpersons: Thales Papagiannakopoulos (NYU School of Medicine)
Douglas D Thomas (University of Illinois Chicago)

10:35-11:00

S13-1 Supersulfides and cancer malignancy

Hozumi Motohashi^{1,2}

¹Department of Medical Biochemistry, Tohoku University Graduate School of Medicine, ²Department of Gene Expression Regulation, IDAC Tohoku University

11:00-11:25

S13-2 KRAS-LKB1-KEAP1 mutation in NSCLC confers resistance to KRAS inhibitor through enhanced anaplerosis

Chiaki Takahashi¹, Renata Akhmetzianova¹, Shunsuke Kitajima², Susumu Kohno¹

¹Cancer Research Institute, Kanazawa University, ²Japan Foundation for Cancer Research

11:25-11:50

S13-3 Redox mechanisms of lung cancer progression

Thales Papagiannakopoulos^{1,2}

¹Pathology Department, NYU School of Medicine, ²Perlmutter Cancer Center, NYU School of Medicine

Redox Week 2025

April 21 (Mon)

11:50-12:15

S13-4 Nitric oxide is a master regulator of the cellular methylome by inhibiting ten-eleven translocation DNA demethylases to regulate 5mC and 5hmC across the genome

Douglas D Thomas

University of Illinois Chicago

12:15-12:40

S13-5 Oxidative stress defense in cancer

Nobuaki Takahashi

Kyoto University

12:40-, April 21 (Mon)

Closing Remarks

Fan-Yan Wei (IDAC, Tohoku University)

13:45-14:35, April 19 and 15:00-15:30, April 20

Poster Session

1. Chemistry (C)

P-1 High-throughput screening of thiosulfate sulfurtransferase (TST) selective inhibitors

Eita Sasaki¹, Takuto Kawate¹, Fan-Yan Wei², Hirotatsu Kojima³, Takayoshi Okabe³, Kenjiro Hanaoka¹

¹Graduate School of Pharmaceutical Sciences, Keio University, ²Department of Modomics Biology and Medicine, Institute of Development, Aging and Cancer, Tohoku University, ³Drug Discovery Initiative, Graduate School of Pharmaceutical Sciences, The University of Tokyo

P-2 Development of selective inhibitors for reactive sulfur species-producing enzyme, cystathionine β -synthase (CBS)

Ko Hirabayashi, Hisashi Ohno, Eita Sasaki, Kenjiro Hanaoka

Graduate School of Pharmaceutical Sciences, Keio University

P-3 Photocaged supersulfidation in cells using a thiol-specific bioconjugation reaction

Shoki Okai, Kazuya Matsuo, Tomonori Waku, Akio Kobori

Kyoto Institute of Technology

P-4 Synthesis of unprotected cyclic peptide methylene dithioacetals by rhodium-catalyzed oxidation of methanol to formaldehyde

Masana Yazaki, Mieko Arisawa

Kyushu University

2. Biochemistry (BC)

P-5 Retinoic acid upregulates Nox4-induced redox signal-dependent endothelial cell migration

Kei Miyano¹, Sae Mishima², Momoe Itsumi¹, Kumiko Terada¹, Shuichiro Okamoto³, Akira Yamauchi³, Futoshi Kuribayashi³, Shin-Ichiro Nishimatsu¹

¹Department of Natural Sciences, Kawasaki Medical School, ²Fifth Year Medical Student in fiscal year of 2025, Kawasaki Medical School, ³Department of Biochemistry, Kawasaki Medical School

P-6 Effects of polysulfide-metabolizing enzymes on proliferation and metabolism in colorectal cancer

Qing Da Wang¹, Ting Lu², Yu Ping Xin¹, Huai Wei Liu¹, Lu Ying Xun³

¹State Key Laboratory of Microbial Technology, Shandong University, Qingdao, People's Republic of China, ²School of Health and Life Sciences, University of Health and Rehabilitation Sciences, Qingdao, People's Republic of China., ³School of Molecular Biosciences, Washington State University, Pullman, WA, USA.

P-7 Fine-tuning of iron transportation regulated by persulfidation of transferrin and its regulation by selenoprotein P in plasma

Takashi Toyama¹, Miyuki Nara¹, Lisa Kageyama², Reona Tobita², Takakazu Nakabayashi², Yoshiro Saito¹

¹Laboratory of Molecular Biology and Metabolism, Graduate School of Pharmaceutical Sciences, Tohoku University, ²Laboratory of Bio-Structural Chemistry, Graduate School of Pharmaceutical Sciences, Tohoku University

P-8 Involvement of Peroxiredoxin 6 in disturbance of selenium metabolism and ferroptosis sensitivity by methylmercury

Hayato Takashima¹, Takashi Toyama¹, Junya Ito², Eikan Mishima², Yoshiro Saito¹

¹Laboratory of Molecular Biology and Metabolism, Graduate School of Pharmaceutical Sciences, Tohoku University, ²Helmholtz Munich

P-9 Stimulation of anaerobic growth of cyanobacteria by reduced sulfur compounds

Ami Ehara¹, Natsuki Kono¹, Kazuma Uesaka², Chisato Hosono³, Kazuki Terauchi³, Chihiro Azai¹

¹Faculty of Science and Engineering, Chuo University, ²Center for Gene Research, Nagoya University, ³Graduate School of Life Sciences, Ritsumeikan University

P-10 Fluxomic and metabolomic analyses reveal the origin of cysteine in disulfide reductase deficient mouse liver

Eszter Petra Juranyi^{1,2}, Edward Schmidt^{3,4}, Colin Miller³, Sydney Austad³, Tamas Ditroi¹, Zoe Seaford³, Reed Noyd³, Justin Prigge³, Gina Denicola⁵, Péter Nagy^{1,4,6}

¹Department of Molecular Immunology and Toxicology, National Institute of Oncology, ²Semmelweis University Doctoral College, Molecular Medicine Division, Semmelweis University, ³Department of Microbiology & Cell Biology, Montana State University, ⁴Department of Anatomy and Histology, HUN-REN-UVMB Laboratory of Redox Biology, University of Veterinary Medicine, ⁵Department of Metabolism & Physiology, H. Lee Moffitt Cancer Center and Research Institute, ⁶Chemistry Coordinating Institute, University of Debrecen

P-11 Potential role of selenoprotein P in persulfide reduction

Noemi Szanto¹, Takashi Toyama², Eszter Petra Juranyi^{1,3}, Katalin Erdelyi¹, Agnes Czikora¹, Tamas Ditroi¹, Yoshiro Saito², Péter Nagy^{1,4,5}

¹Department of Molecular Immunology and Toxicology and the National Tumor Biology Laboratory, National Institute of Oncology, ²Laboratory of Molecular Biology and Metabolism, Graduate School of Pharmaceutical Sciences, Tohoku University, ³Semmelweis University Doctoral College, Molecular Medicine Division, Semmelweis University, ⁴Department of Anatomy and Histology, HUN-REN-UVMB Laboratory of Redox Biology, University of Veterinary Medicine, ⁵Chemistry Coordinating Institute, University of Debrecen

- P-12** **Characterization of cysteine persulfide synthases in *Arabidopsis thaliana***
Saki Otsuka¹, Masaru Tsujii¹, Tomoaki Ida², Seiryō Ogata², Minkyung Jung², Takaaki Akaike², Yasuhiro Ishimaru¹, Nobuyuki Uozumi¹
¹Department of Biomolecular Engineering Graduate School of Engineering Tohoku University, ²Department of Environmental Medicine and Molecular Toxicology, Graduate School of Medicine, Tohoku University
- P-13** **Enhanced de novo fatty acid synthesis through protein arginine methylation contributes to the acquisition of chemoresistance in triple-negative breast cancer**
Takehiro Yamamoto^{1,4}, Tetsu Hayashida², Yohei Masugi³, Mai Itoh⁴, Takako Hishiki¹, Chiyoko Nishime⁴, Naoharu Takano⁵, Makoto Suematsu^{1,5}
¹Department of Biochemistry, School of Medicine, Keio University, ²Department of Surgery, School of Medicine, Keio University, ³Department of Pathology, School of Medicine, Keio University, ⁴Central Institute of Experimental Medicine, ⁵Department of Biochemistry, School of Medicine, Tokyo Medical University
- P-14** **Cystathionine β-synthase regulates calcium metabolism**
Takashi Nakamura¹, Akiko Kubo², Takafumi Yoshioka³, Takehiro Yamamoto⁴, Tatsuya Yamamoto⁵, Isao Ishii⁶, Makoto Suematsu⁷
¹Oral Health Science Center, Tokyo Dental College, ²Division of Dermatology, Kobe University, ³Department of Ophthalmology, Asahikawa Medical University, ⁴Department of Biochemistry, Keio University School of Medicine, ⁵Bioorganic Research Institute, Suntory Foundation for Life Sciences, ⁶Department of Health Chemistry, Showa Pharmaceutical University, ⁷Central Institute for Experimental Medicine and Life Science
- P-15** **Structural rearrangement of *E. coli* TusE accompanied with persulfidation is required for secure sulfur-transfer in the biosynthesis of tRNA 2-thiouridine**
Yuji Tokunaga¹, Kenjo Miyauchi², Yuriko Sakaguchi², Miki Senda³, Ayaka Hiroi^{3,4}, Toshiya Senda³, Tsutomu Suzuki², Koh Takeuchi¹, Naoki Shigi⁵
¹Graduate School of Pharmaceutical Sciences, The University of Tokyo, ²Department of Chemistry and Biotechnology, Graduate School of Engineering, The University of Tokyo, ³Structural Biology Research Center, Institute of Material Structure Science, High Energy Accelerator Research Organization (KEK), ⁴Department of Materials Science and Bioengineering, Nagaoka University of Technology, ⁵Department of Life Science and Biotechnology, National Institute of Advanced Industrial Science and Technology (AIST)
- P-16** **Comprehensive suppression of PRL family molecules leads to intracellular Mg²⁺-deficiency and cell death mediated by NF-κB signaling**
Koyuki Kawamura, Yosuke Funato, Hiroaki Miki
Kyoto University

- P-17** **Novel persulfidation-induced high molecular weight oligomer of PRX1 and its chaperone-like activity**
Ren Nakae, Yosuke Funato, Osamu Hashizume, Hiroaki Miki
Laboratory of Biorecognition Chemistry, Department of Synthetic Chemistry and Biological Chemistry, Graduate School of Engineering, Kyoto University
- P-18** **Structure analysis of the Fe-S cluster biosynthesis protein complex SufBCD by cryo-electron microscopy**
Misato Tsuji¹, Josei Uchida², Yumiko Motoyama², Takeshi Yokoyama¹, Kei Wada², Yoshikazu Tanaka¹
¹Graduate school of Life Sciences, Tohoku University, ²Faculty of Medicine, University of Miyazaki
- P-19** **Maintaining ER homeostasis through persulfidation protein**
Hatsuho Kawauchi¹, Chika Tsutsumi¹, Kaiku Uegaki², Ryo Ushioda^{1,3}
¹Graduate school of Life sciences, Kyoto Sangyo University, ²Howard Hughes Medical Institute and Department of Cell Biology, Harvard Medical School, ³Institute of protein dynamics, Kyoto Sangyo University
- P-20** **Physiological functions of protein supersulfidation by cysteinyl-tRNA synthetase 1 (CARS1) in skeletal muscle**
Mei Omata¹, Yusuke Kusano^{1,2}, Shohei Murakami¹, Masanobu Morita³, Tomoaki Ida³, Keitaro Umezawa⁴, Tomoyoshi Soga⁵, Yukio Katori², Takaaki Akaike³, Hozumi Motohashi¹
¹Department of Medical Biochemistry, Tohoku University Graduate School of Medicine, ²Department of Otolaryngology-Head & Neck Surgery, Tohoku University Graduate School of Medicine, ³Department of Environmental Medicine and Molecular Toxicology, Tohoku University Graduate School of Medicine, ⁴Tokyo Metropolitan Institute for Geriatrics and Gerontology, ⁵Institute for Advanced Biosciences, Keio University
- P-21** **S-Sulfhydrated human serum albumin suppresses cellular levels of reactive oxygen and nitrogen species**
Mei Tokunaga¹, Mayumi Ikeda-Imafuku¹, Tatsuya Fukuta¹, Yu Ishima², Kazunori Kadota¹
¹Wakayama Medical University, ²Kyoto Pharmaceutical University
- P-22** **Bacterial cysteine-mediated inactivation of aminoglycoside antibiotics**
Katsuhiko Ono¹, Takuro Niidome², Takaaki Akaike³, Tomohiro Sawa¹
¹Department of Microbiology, Faculty of Life Sciences, Kumamoto University, ²Faculty of Advanced Science and Technology, Kumamoto University, ³Department of Environmental Medicine and Molecular Toxicology, Tohoku University Graduate School of Medicine
- P-23** **Identification of oxidative stress dependent mitochondrial tRNA modification**
Raja Norazireen Raja Ahmad¹, Akiko Ogawa¹, Long-Teng Zhang¹, Kazuyasu Kanazawa¹, Tomohiro Sawa², Fan-Yan Wei¹
¹Department of Modomics Biology and Medicine, Institute of Development Aging and Cancer, Tohoku University, ²Department of Microbiology, Faculty of Life Sciences, Kumamoto University

P-24 Molecular mechanism of Mtu1-catalyzed sulfur modification in mitochondrial tRNAs

Haruna Tani¹, Raja Norazireen Raja Ahmad¹, Longteng Zhang¹, Keitaro Umezawa², Akiyuki Nishimura³, Motohiro Nishida^{3,4}, Shungo Adachi⁵, Yuhei Arais⁶, Fan-Yan Wei¹

¹IDAC, Tohoku University, ²Tokyo Metropolitan Institute of Gerontology, ³National Institute for Physiological Sciences, ⁴Graduate School of Pharmaceutical Sciences, Kyushu University, ⁵National Cancer Center, ⁶Graduate School of Medical Science, Kanazawa University

P-25 Characterization of the role of bacterial tRNA selenium modification in protein translation

Kazuyasu Kanazawa¹, Raja Norazireen Raja Ahmad¹, Haruna Tani¹, Shigeru Matsuda¹, Akiko Ogawa¹, Elias S. J. Arnér², Fan-Yan Wei¹

¹Department of Modomics Biology and Medicine, Institute of Development, Aging and Cancer, Tohoku University, ²Division of Biochemistry, Department of Medical Biochemistry and Biophysics, Karolinska Institutet

P-26 Dynamic changes in NLRP3 supersulfidation drive inflammasome activation

Tianli Zhang¹, Akiyuki Nishimura², Hiroyasu Tsutsuki³, Kazuaki Monde³, Tetsuro Matsunaga¹, Motohiro Nishida^{2,4}, Takaaki Akaike⁵, Tomohiro Sawa³

¹Center for Integrated Control, Epidemiology and Molecular Pathophysiology of Infectious Diseases, Akita University, Japan, ²Division of Cardiocirculatory Signaling, National Institute for Physiological Sciences, National Institutes of Natural Sciences, Japan, ³Department of Microbiology, Graduate School of Medical Sciences, Kumamoto University, Japan, ⁴Department of Physiology, Graduate School of Pharmaceutical Sciences, Kyushu University, Japan, ⁵Department of Environmental Medicine and Molecular Toxicology, Tohoku University Graduate School of Medicine, Japan

P-27 Identification of aminoacyl-tRNA synthetases as a new family of persulfide synthases

Satoshi Shimozawa¹, Tomoaki Ida², Minkyung Jung¹, Seiryu Ogata¹, Masanobu Morita¹, Tetsuro Matsunaga³, Tsuyoshi Takata¹, Hozumi Motohashi⁴, Takaaki Akaike¹

¹Dept. Environ. Med. Mol. Toxicol., Tohoku Univ. Grad. Sch. Med., Japan, ²Dept. Biol. Chem., Grad. Sch. Sci., Osaka Metro. Univ., Japan, ³Cent. Integr. Cont. Epidemiol. Mol. Pathophysiol. Infect. Dis., Akita Univ., Japan, ⁴Dept. Med. Biochem., Tohoku Univ. Grad. Sch. Med., Japan

P-28 Rhodanese functions as sulfurtransferase for cyclo-octasulfur (S₈) metabolism

Minkyung Jung¹, Tsuyoshi Takata¹, Yuka Unno², Akira Sato¹, Masanobu Morita¹, Tetsuro Matsunaga^{1,3,4}, Hozumi Motohashi⁴, Takaaki Akaike¹

¹Department of Environmental Medicine and Molecular Toxicology, Tohoku University Graduate School of Medicine, ²Miyagi Prefectural Hospital Organization Miyagi Cancer Center, Japan, ³Center for Integrated Control, Epidemiology and Molecular Pathophysiology of Infectious Diseases, Akita University, Japan, ⁴Department of Medical Biochemistry, Tohoku University Graduate School of Medicine, Japan

P-29 Sulfide quinone oxidoreductase (SQR)-mediated sulfur respiration in mitochondria by supersulfides in mammals

Masanobu Morita¹, Tetsuro Matsunaga^{1,2}, Tomoaki Ida¹, Seiryō Ogata¹, Tsuyoshi Takata¹, Minkyung Jung¹, Uladzimir Barayeu^{1,3}, Motohiro Nishida⁴, Hozumi Motohashi⁵, Takaaki Akaike¹

¹Department of Environmental Medicine and Molecular Toxicology, Tohoku University Graduate School of Medicine, ²Center for Integrated Control, Epidemiology and Molecular Pathophysiology of Infectious Diseases, Akita University, ³Max-Planck-Institute for Polymer Research, ⁴Department of Physiology, Graduate School of Pharmaceutical Sciences, Kyushu University, ⁵Department of Medical Biochemistry, Tohoku University Graduate School of Medicine

P-30 Regulatory mechanism of supersulfides production in endothelial cells

Yuexuan Pan¹, Tsuyoshi Takata¹, Minkyung Jung¹, Uladzimir Barayeu^{1,2}, Seiryō Ogata¹, Tetsuro Matsunaga^{1,3}, Jun Yoshitake¹, Masanobu Morita¹, Takaaki Akaike¹

¹Department of Environmental Medicine and Molecular Toxicology, Tohoku University, ²Max-Planck-Institute for Polymer Research, Germany, ³Center for Integrated Control, Epidemiology and Molecular Pathophysiology of Infectious Diseases, Akita University, Japan

P-31 Longevity regulation via supersulfides in yeast

Jun Yoshitake¹, Akira Nishimura², Tetsuro Matsunaga^{1,3}, Tomoaki Ida¹, Seiryō Ogata¹, Minkyung Jung¹, Masanobu Morita¹, Tsuyoshi Takata¹, Hozumi Motohashi⁴, Takaaki Akaike¹

¹Department of Environmental Medicine and Molecular Toxicology, Tohoku University Graduate School of Medicine, ²Division of Biological Science, Graduate School of Science and Technology, Nara Institute of Science and Technology, ³Center for Integrated Control, Epidemiology and Molecular Pathophysiology of Infectious Disease, Akita University, ⁴Department of Medical Biochemistry, Tohoku University Graduate School of Medicine

P-32 Supersulfide catalysis for nitric oxide and aldehyde metabolism mediated by alcohol dehydrogenase 5 (ADH5)

Zizai Shen¹, Masanobu Morita¹, Shingo Kasamatsu², Seiryō Ogata¹, Minkyung Jung¹, Tetsuro Matsunaga^{1,3}, Uladzimir Barayeu^{1,4}, Akira Nishimura⁵, Morshedul Alam⁶, Kakeru Shimoda⁷, Motohiro Nishida⁷, Hozumi Motohashi⁶, Takaaki Akaike¹

¹Department of Environmental Medicine and Molecular Toxicology, Tohoku University Graduate School of Medicine, Japan, ²Department of Biological Chemistry, Graduate School of Science, Osaka Metropolitan University, Japan, ³Center for Integrated Control, Epidemiology and Molecular Pathophysiology of Infectious Diseases, Akita University, Japan, ⁴Max-Planck-Institute for Polymer Research, Germany, ⁵Division of Biological Science, Graduate School of Science and Technology, Nara Institute of Science and Technology, Japan, ⁶Department of Medical Biochemistry, Tohoku University Graduate School of Medicine, Japan, ⁷Department of Physiology, Graduate School of Pharmaceutical Sciences, Kyushu University, Japan

P-33 The role of sulfite oxidase in mitochondrial supersulfide metabolism

Yingchi Xia¹, Masanobu Morita¹, Seiryō Ogata¹, Tetsuro Matsunaga²,
Uladzimir Barayeu¹, Minkyung Jung¹, Naim Hassan¹, Tsuyoshi Takata¹,
Hozumi Motohashi³, Takaaki Akaïke¹

¹Department of Environmental Medicine and Molecular Toxicology, Tohoku University Graduate School of Medicine, ²Center for Integrated Control, Epidemiology and Molecular Pathophysiology of Infectious Diseases, Akita University, ³Department of Medical Biochemistry, Tohoku University Graduate School of Medicine

P-34 NOX and NOS functioning as *cyclo*-octasulfur (S₈) synthases in supersulfide metabolism

Tsuyoshi Takata¹, Uladzimir Barayeu^{1,2}, Tetsuro Matsunaga^{1,3}, Minkyung Jung¹,
Seiryō Ogata¹, Masanobu Morita¹, Yukihiro Tsuchiya⁴, Yasuo Watanabe⁴,
Hozumi Motohashi⁵, Michito Yoshizawa⁶, Hideki Sumimoto⁷, Takaaki Akaïke¹

¹Department of Environmental Medicine and Molecular Toxicology, Tohoku University Graduate School of Medicine, Japan, ²Max-Planck-Institute for Polymer Research, Germany, ³Center for Integrated Control, Epidemiology and Molecular Pathophysiology of Infectious Diseases, Akita University, Japan, ⁴Department of Pharmacology, Showa Pharmaceutical University, Japan, ⁵Department of Medical Biochemistry, Tohoku University Graduate School of Medicine, Japan, ⁶Laboratory for Chemistry and Life Science, Institute of Integrated Research, Institute of Science Tokyo, Japan, ⁷Center for Advanced Medical Open Innovation, Kyushu University, Japan

P-35 Differential vulnerability of round spermatids to ferroptosis during spermatogenesis

Leon Shen Yang Giesselink, Jasper Germeraad, Takako Kikkawa, Noriko Osumi

Department of Developmental Neuroscience, Tohoku University Graduate School of Medicine

P-36 Vitamin E mitigates an aging-associated shift in XY chromosome ratio in murine germ cells by modulating ferroptosis

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P-37 Evaluation of physical and biological properties of tetrasulfide compounds with different terminal structures

Yuka Hamazaki, Yuki Kobayashi, Yu Ishima

Kyoto Pharmaceutical University

P-38 The analysis of UCP1 activation mechanism by lipidperoxidation in brown adipose

Yuto Ishikawa¹, Isshin Shiiba¹, Hidetaka Kozakura², Keitaro Umezawa³, Hideki Nishito⁴,
Kenichi Yamada², Shigeru Yanagi¹

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P-39 **Regulatory mechanism for supplying heme-derived iron to mitochondria via ER-mitochondria contact sites**

Hijiri Oshio¹, Isshin Shiiba¹, Naoki Ito¹, Fuya Yamaguchi¹, Naozumi Okada¹, Yuto Ishikawa¹, Shun Nagashima², Yuuta Fujikawa², Keitaro Umezawa³, Yuri Miura³, Misaki Shimizu⁴, Yoshiro Saito⁴, Tomoyuki Yamaguchi², Ryoko Inatome¹, Shigeru Yanagi¹

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3. Molecular Genetics (MG)

P-40 **Localization and function of sulfur transferase ExtH in sulfur-reducing bacterium *Geobacter sulfurreducens***

Kosuke Ogiso¹, Daiki Fujita¹, Aoto Kudo¹, Anna Ochi¹, Masao Inoue², Riku Aono¹, Hisaaki Mihara¹

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P-41 **Heme-binding of SqrR and YgaV confers responsiveness to hydrogen sulfide under aerobic conditions with distinct coordination modes depending on heme iron redox state**

Ryoma Iwata, Shinji Masuda

Institute of Science Tokyo

P-42 **Mitochondrial activity is a critical determinant of lineage choice of megakaryocyte-erythroid progenitors**

Eunkyung Sung¹, Shohei Murakami¹, Tomoaki Iida², Masanobu Morita³, Takaaki Akaike³, Hozumi Motohashi^{1,4}

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P-43 **Inhibition of Drp1-Filamin interaction suppresses accumulation of lipid droplet and improves fatty liver via the increase of contact between mitochondria and lipid droplet**

Kohei Ariyoshi¹, Kazuhiro Nishiyama², Yuri Kato¹, Xinya Mi¹, Tomoya Ito¹, Akiyuki Nishimura³, Motohiro Nishida^{1,3}

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P-44 **A mechanism of the ER homeostasis disruption by reductive stress**

Yuna Baba¹, Shota Wada¹, Hiroaki Takayama³, Takashi Toyama²,
Toshinari Takamura³, Yoshiro Saito², Ryo Ushioda^{1,4}

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P-45 **CTH is essential for zebrafish growth, whereas CBS is dispensable**

Li Quan¹, Guilin Dong¹, Yuta Sato¹, Makoto Kashima², Makoto Kobayashi¹

¹University of Tsukuba, ²Toho University

P-46 **Decoding renal urate transport system at the single-cell and transportsome levels**

Yoshihiko Sakaguchi^{1,2}, Pattama Wiriyasermkul^{2,3}, Riko Sakaguchi^{2,4},
Masaki Miyasaka^{2,4}, Shushi Nagamori^{2,4}

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P-47 **Approaches to elucidate stop codon readthrough phenomenon: Functional and structural insight**

Koki Nomura¹, Yusuke Ohkubo¹, Arisa Suto², Takashi Matsui², Yoshio Kodera²,
Takeshi Yokoyama¹, Yoshikazu Tanaka¹

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P-48 **Ribosome profiling of stalled ribosome sensor *Gcn1* knockout mouse embryonic fibroblasts**

Shuya Kasai¹, Yuichi Shichino², Peixun Han², Yota Tataru¹, Junsei Mimura¹,
Shintaro Iwasaki^{2,3}, Ken Itoh¹

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4. Diseases & Clinical Medicine (DC)

P-49 Supersulfide production via CARS2 protected ischemic heart by maintaining mitochondrial function

Xiaokang Tang^{1,2}, Kakeru Shimoda^{1,3}, Akiyuki Nishimura^{1,2}, Masanobu Morita⁴, Takaaki Akaike⁴, Motohiro Nishida^{1,2,3}

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P-50 Zn²⁺-dependent maintenance of redox homeostasis by TRPC6 activation underlies prevention of cardiac fibrosis

Chenlin Su¹, Xinya Mi¹, Tomoya Ito¹, Yuri Kato¹, Akiyuki Nishimura^{2,3,4}, Ryu Nagata⁵, Yasuo Mori⁶, Motohiro Nishida^{1,2,3,4}

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P-51 Involvement of NADPH oxidase 2-interacting TRPC channels in mouse heart failure with preserved ejection fraction

Kentaro Mizushima¹, Yuri Kato¹, Tomoya Ito¹, Xinya Mi¹, Akiyuki Nishimura², Motohiro Nishida^{1,2}

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P-52 Differences in protein supersulfidation in hearts with systolic and diastolic dysfunction

Yuya Nakamura¹, Koki Tachibana¹, Xiaokang Tang^{2,3}, Liuchenzi Zhou^{2,3}, Kentaro Mizushima¹, Yuri Kato¹, Tomoya Ito¹, Akiyuki Nishimura^{2,3}, Motohiro Nishida^{1,2,3}

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P-53 Cardiac cell remodeling: The influence of supersulfide catabolism

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- P-54** **Inorganic sulfide prevents osimertinib-induced human cardiotoxicity**
Yuga Nakaguma¹, Moe Kondo^{1,2}, Yuya Nakamura¹, Yuri Kato¹, Tomoya Ito¹, Akiyuki Nishimura³, Motohiro Nishida^{1,3}
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- P-55** **Amelioration of diabetes by curcumin derivatives through inhibition of the synthesis of selenoprotein P, an exacerbation factor of diabetes**
Yinuo Wang¹, Takashi Toyama¹, Hiroyuki Yamakoshi², Yoshiharu Iwabuchi², Yoshiro Saito¹
¹Laboratory of Molecular Biology and Metabolism, Graduate School of Pharmaceutical Sciences, Tohoku University, ²Laboratory of Synthetic Chemistry, Graduate School of Pharmaceutical Sciences, Tohoku University
- P-56** **Promotion of lead-induced cytotoxicity via ER stress in differentiating neural cells and protective effects of selenium and SELENOK**
Satoru Shiina, Takayuki Kaneko, Takashi Toyama, Yoshiro Saito
Laboratory of Molecular Biology and Metabolism, Graduate School of Pharmaceutical Sciences, Tohoku University
- P-57** **Inhibition of Nrf2 in Nrf2-upregulated glioblastoma increases ferroptosis resistance- Role of heme oxygenase 1**
Stephanie Ka Kiu Siu, Takashi Toyama, Yoshiro Saito
Tohoku University Graduate School of Pharmaceutical Sciences, Laboratory of Molecular Biology and Metabolism
- P-58** **Host redox regulation in the pathogenicity of SubAB toxin from Shiga toxin-producing *Escherichia coli***
Hiroyasu Tsutsuki¹, Tianli Zhang², Kinnoyuke Yahiro³, Takaaki Akaike⁴, Tomohiro Sawa¹
¹Department of Microbiology, Graduate School of Medical Sciences, Kumamoto University, ²Center for Integrated Control, Epidemiology and Molecular Pathophysiology of Infectious Diseases, Akita University, ³Department of Microbiology and Infection Control Sciences, Kyoto Pharmaceutical University, ⁴Department of Environmental Medicine and Molecular Toxicology, Tohoku University Graduate School of Medicine
- P-59** **Protective roles of supersulfides on acetaminophen induced liver injury**
Chunyu Guo¹, Hiroyasu Tsutsuki¹, Touya Toyomoto¹, Katsuhiko Ono¹, Yukio Fujiwara¹, Stephen Lindahl², Ming Xian², Tomohiro Sawa¹
¹Kumamoto University, ²Brown University

- P-60** **Anti-inflammatory effects of supersulfides on influenza A virus infection in mice**
Foyсал Hossen¹, Hiroyasu Tsutsuki¹, Takahisa Kouwaki¹, Tianli Zhang³, Yukio Fujiwara¹, Hiroyuki Oshiumi¹, Takaaki Akaike², Tomohiro Sawa¹
¹Kumamoto University, ²Tohoku University, ³Akita University
- P-61** **Selenoprotein P suppression by NRF2 activation drives selenoprotein trade-off and ferroptosis resistance in hepatocellular carcinoma**
Kotoko Arisawa, Tetta Hiranuma, Moeka Natori, Takashi Toyama, Yoshiro Saito
Graduate School of Pharmaceutical Sciences, Tohoku University
- P-62** **Microbial supersulfides contribute to host protection against oxidative stress**
Jun Uchiyama^{1,2}, Masahiro Akiyama¹
¹Showa University, Clinical Research Institute for Clinical Pharmacology and Therapeutics, ²Graduate School of Pharmaceutical Sciences, Keio University
- P-63** **Vitamin B6 mitigates ferroptosis by promoting supersulfide synthesis in bleomycin-induced pulmonary fibrosis**
Hiroki Sekine¹, Chikara Sakai^{1,2}, Keito Okazaki^{1,3}, Eunkyu Sung¹, Zinying Liu¹, Chon Kit Lio¹, Yusuke Uchibori^{1,4}, Shohei Murakami¹, Tatsuaki Watanabe², Yoshinori Okada², Hozumi Motohashi^{1,3}
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- P-64** **Cisplatin-induced ferroptosis is preferentially induced in proximal tubule S3 segment-derived immortalized cells**
Hiroki Taguchi^{1,2}, Hitomi Fujishiro², Daigo Sumi²
¹Japan Society for the Promotion of Science (JSPS) Postdoctoral Fellow, Graduate School of Pharmaceutical Sciences, Tohoku University, ²Faculty of Pharmaceutical Sciences, Tokushima Bunri University
- P-65** **Synthesis and evaluation of supersulfides-containing ionic liquids for dermatological diseases**
Haruka Mikata, Mayumi Ikeda-Imafuku, Tatsuya Fukuta, Kazunori Kadota
Department of Physical Pharmaceutics, School of Pharmaceutical Sciences, Wakayama Medical University

P-66 **Supersulfides contribute to joint homeostasis and bone regeneration**

Miki Maemura^{1,2}, Masanobu Morita³, Seiryu Ogata³, Yoichi Miyamoto⁴, Tomoaki Ida³, Kazuhiro Shibusaka^{2,5}, Soichiro Negishi^{1,2}, Masahiro Hosonuma⁶, Taku Saito⁷, Jun Yoshitake³, Tsuyoshi Takata³, Tetsuro Matsunaga^{3,8}, Eikan Mishima⁹, Uladzimir Barayeu¹⁰, Takaaki Akaike³, Fumiko Yano¹¹

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P-67 **Supersulfides protect against SARS-CoV-2 infection via suppression of the viral thiol proteases**

Jia Yao¹, Tetsuro Matsunaga^{1,2}, Masanobu Morita¹, Seiryu Ogata¹, Minkyung Jung¹, Uladzimir Barayeu¹, Tsuyoshi Takata¹, Hozumi Motohashi³, Takaaki Akaike¹

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P-68 **Breath omics developed for a hamster model of SARS-CoV-2 infection**

Yujun Tan¹, Seiryu Ogata¹, Tetsuro Matsunaga^{1,2}, Masanobu Morita¹, Fan-Yan Wei³, Hozumi Motohashi⁴, Takaaki Akaike¹

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P-69 **Supersulfide metabolome of exhaled breath condensate for diagnostic biomarkers of esophageal cancer**

Seiji Asamitsu^{1,2}, Yohei Ozawa¹, Seiryu Ogata², Hiroshi Okamoto¹, Jun Yoshitake², Tetsuro Matsunaga³, Yusuke Taniyama¹, Chiaki Sato¹, Hirotaka Ishida¹, Takaaki Abe⁴, Takashi Kamei¹, Takaaki Akaike²

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5. Methodology (M)

P-70 Robust determination of coenzyme Q10 redox status using two isotope-labeled internal standards

Yun Pyo Kang¹, Tae Ha Kim¹, Chi Thi Ngoc Nguyen¹, Seon Min Kim¹, Eun-Woo Lee^{2,3,4}, Sung Won Kwon¹

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P-71 High sensitive and high signal-to-noise ratio Raman measurements of biological macromolecules using liquid-liquid phase separation and application to the detection of supersulfide structures

Lisa Kageyama, Reona Tobita, Shinya Tahara, Shinji Kajimoto, Takakazu Nakabayashi

Tohoku University

P-72 Raman imaging reveals the regulatory mechanism of ferroptosis by the application of external lipids

Ryota Dobashi, Masato Machida, Shinji Kajimoto, Takakazu Nakabayashi

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P-73 Development of a new detection method for supersulfide molecules using Raman scattering

Keisuke Koga¹, Hirotsugu Hiramatsu², Shinji Kajimoto¹, Takakazu Nakabayashi¹

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P-74 Detection of protein polysulfidation using a β -(4-hydroxyphenyl)ethyl iodoacetamide derived biotin tag HPB

Yu Ping Xin¹, Xin Yue Zhang¹, Qing Da Wang¹, Long Yang Dian¹, Yong Zhen Xia¹, Lu Ying Xun², Huai Wei Liu¹

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P-75 Development of new chemical tools for comprehensive analysis of supersulfidated biomolecules and proteins

Keitaro Umezawa¹, Hiroki Tsumoto¹, Kyojiro Kawakami¹, Kamrun Naher¹, Akiyuki Nishimura^{2,3,4}, Motohiro Nishida^{2,3,4,5}, Yu Ishima⁶, Yasuteru Urano^{7,8}, Yuri Miura¹

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P-76 Quantitative redox proteomics of human muscle response to exercise identified p62 oxidation as necessary in contraction mediated adaptations

Jonathan Joseph Petrocelli^{1,2}, Yu Lei^{1,2}, Anita Reddy^{1,2}, Nils Burger^{1,2},
Christian Voldstedlund³, Haopeng Xiao^{1,2}, Thomas Jensen³, Erik Richter³,
Edward Chouchani^{1,2}

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P-77 Development of nucleic acid aptamers that bind conformation-restricted analogues of amyloid supersulfide

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P-78 Development of a mitochondria-targeting fluorescence probe for detecting hydrogen peroxide based on steric repulsion-induced twisted intramolecular charge transfer

Mizuki Sugimoto, Eita Sasaki, Hisashi Ohno, Kenjiro Hanaoka

Keio University

P-79 Fluorescence imaging of newly synthesized proteins and their degradation dynamics in living cells

Shun Sumitani, Eita Sasaki, Hisashi Ohno, Kenjiro Hanaoka

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P-80 Development of a fluorescence probe for singlet oxygen based on the p-TICT mechanism

Tatsuya Ogata, Hisashi Ohno, Kenjiro Hanaoka

Graduate School of Pharmaceutical Sciences, Keio University

P-81 Quantitative profiling of supersulfides in foods: Advances in sulfur-containing compounds analysis for nutritional and health applications

Hideshi Ihara, Shingo Kasamatsu, Ayaka Kinno, Somei Komae, Chiharu Miura,
Kirara Tanaka, Haruka Nitta, Wakana Nagamura

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P-82 Supersulfide proteome analysis for the detection of protein modification

Seiryu Ogata¹, Tomoaki Ida¹, Tsuyoshi Takata¹, Jun Yoshitake¹, Tetsuro Matsunaga^{1,2},
Minkyung Jung¹, Masanobu Morita¹, Takaaki Akaike¹

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P-83 **Breath supersulfide analysis for disease profiling**

Kazuki Fusegawa^{1,2}, Seiryu Ogata¹, Seji Asamitsu^{1,2}, Masanobu Morita¹,
Tetsuro Matsunaga¹, Yohei Ozawa², Takashi Kamei², Fan-Yan Wei³,
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P-84 **Mercapto-NSAIDs generate a non-steroidal anti-inflammatory drug (NSAID) and hydrogen sulfide**

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