

**The 33rd Annual Meeting of the Japanese Society
for Biomedical Mass Spectrometry**

Program

September 25th (Thu.) - 26th (Fri.)

Tetsumon Memorial Hall in Experimental Research Bldg.,
Graduate School of Medicine, The University of Tokyo
7-3-1, Hongo, Bunkyo-ku, Tokyo 113-0033 Japan

Ryo Taguchi, Ph.D.
President of the 33rd Annual Meeting of
the Japanese Society for Biomedical Mass Spectrometry

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**The 33rd Annual Meeting of the Japanese Society
for Biomedical Mass Spectrometry**

President of the 33rd Annual Meeting: Ryo Taguchi, Ph.D.

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Japanese Society for Biomedical Mass Spectrometry

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Time Schedule

September 25 (Thursday)

9:15	Opening Remarks
9:20-11:10	Symposium 1 (S1-1 – S1-4)
11:10	<Break>
11:20	Plenary Lecture L1
12:10	<Lunch > <Board Meeting>
12:50	<JSBMS General Meeting>
13:20-14:30	Technical Seminar
14:30-16:20	Symposium 2 (S2-1 – S2-4)
16:20	<Break>
16:40-18:30	Symposium 3 (S3-1 – S3-5)
18:30	Banquet

September 26 (Friday)

9:00-10:40	Symposium 4 (S4-1 – S4-4)
10:40	Invited Lecture L2
11:20	<Break>
11:30	“Isamu Matsumoto” Prize Lecture L3
11:50	JSBMS Junior Award Lecture L4
12:10	<Lunch>
12:40	Poster Presentations (P1 – P27)
14:10-16:00	Symposium 5 (S5-1 – S5- 6)
16:00	<Break>
16:20-18:10	Symposium 6 (S6-1 – S6-4)
18:10	Closing Remarks

Program

September 25 (Thursday)

9:15 Opening Remarks (Ryo Taguchi)

9:20-11:10 Symposium 1 “Clinical proteomics”

Organizer: Yoshiya Oda Chairs: Yoshiya Oda, Nariyasu Mano

S1-1 Clinical proteomics: From bench to bedside

Fumio Nomura ^{1,2}, Hiroshi Umemura ¹, Kazuyuki Sogawa ², Takeshi Tomonaga ¹,
Yoshio Kodera ^{2,3}

¹ Department of Molecular Diagnosis, Graduate School of Medicine, Chiba University

² Clinical Proteomics Center, Chiba University Hospital

³ Department of Physics, Kitasato University School of Science

S1-2 Proteomic analyses for biomarker discovery in human respiratory diseases

Kiyoshi Yanagisawa ^{1,2}, Shuta Tomida ², Takashi Takahashi ²

¹ Institute for Advanced Research, Nagoya University

² Division of Molecular Carcinogenesis, Center for Neurological Diseases and Cancer,
Nagoya University Graduate School of Medicine

**S1-3 Disease proteomics by a newly established biomarker discovery system;
The present status and future prospect**

Makoto Watanabe ^{1,2}, Osamu Nishimura ^{1,2}

¹ Division of Disease Proteomics, Institute for Protein Research, Osaka University

² Shimadzu Corporation

S1-4 Proteomic analysis of body fluids for biomarker discovery

Toshifumi Takao

Laboratory of Protein Profiling and Functional Proteomics, Institute for Protein
Research, Osaka University

11:10 <Break>

11:20 Plenary Lecture L1 (Chair: Tomiko Kuhara)

From lipid mediators to lipid metabolism

Takao Shimizu

Department of Biochemistry and Molecular Biology, Faculty of Medicine,
The University of Tokyo

12:10 <Lunch > (Board Meeting)

12:50 <JSBMS General Meeting>

13:20-14:30 **Technical Seminar** (Chair: Tetsuyuki Kobayashi)

- I-1 Thermo Fisher Scientific K.K.
- I-2 Agilent Technologies Japan, Ltd.
- I-3 Shimadzu Corporation
- I-4 Human Metabolome Technologies, Inc.
- I-5 Applied Biosystems Japan Ltd.
- I-6 Bruker Daltonics K.K.

14:30-16:20 **Symposium 2 “Biomarker discovery and development of personalized medicine”**

Organizer: Tomiko Kuhara Chairs: Tomiko Kuhara, Yosuke Shigematsu

S2-1 Toxicological assessment by metabolic fingerprinting with FT-ICR MS

Mina Hasegawa ^{1,2}, Mika Ide ², Mitsuru Kuwamura ¹, Jyoji Yamate ¹,
Shigeo Takenaka ¹

¹ Department of Veterinary Science, Graduate School of Life and Environmental
Sciences, Osaka Prefecture University

² Safety Research Laboratory, Mitsubishi Tanabe Pharma Corporation

**S2-2 Cortisol 6 β -hydroxylation clearance serves as a biomarker for phenotyping
CYP3A4 activity in humans**

Hiromi Shibasaki ¹, Sawako Okamoto ¹, Takashi Furuta ¹

¹ Department of Medicinal Chemistry and Clinical Pharmacy, School of Pharmacy,
Tokyo University of Pharmacy and Life Sciences

**S2-3 Achievements and improvements in multi-center pilot study of newborn screening
by tandem mass spectrometry**

Yosuke Shigematsu

Department of Health Science, Faculty of Medical Sciences, University of Fukui

S2-4 Application of GC/MS-based metabolic profiling to personalized medicine

Tomiko Kuhara

Division of Human Genetics, Medical Research Institute, Kanazawa Medical University

16:20 <Break>

16:40-18:30 Symposium 3 “Approaches for investigation of pathological condition by focused on endogenous bioactive molecules”

Organizer: Shigeo Ikegawa Chairs: Shigeo Ikegawa, Takashi Furuta

S3-1 Highly sensitive analyses of conjugated bile acids in urine by LC/MS

Takaaki Goto

Department of Bio-Analytical Chemistry, Graduate School of Pharmaceutical Sciences,
Tohoku University

S3-2 Liquid chromatography–tandem mass spectrometric assays of hormones in saliva: noninvasive tools for assessment of hormone production status

Tatsuya Higashi

Division of Pharmaceutical Sciences, College of Medical, Pharmaceutical and Health
Sciences, Kanazawa University

S3-3 Exhaustive analysis and quantification of lipid hydroperoxides by tandem mass spectrometry

Teruo Miyazawa¹, Kiyotaka Nakagawa¹, Daigo Ibusuki¹, Akira Asai²,
and Shinichi Oikawa²

¹ Division of Food Chemistry and Nutrition, Tohoku University, Sendai 981-8555

² Department of Endocrinology and Metabolism, Nippon Medical School, Tokyo
113-8603

S3-4 Live single-cell video-mass spectrometry with differential MS display analysis for molecular searching

Tsutomu Masujima, Naohiro Tsuyama, Yohei Horie, Hajime Mizuno

Department of Molecular Medicine and Devices, Graduate School of Biomedical
Sciences, Hiroshima University

S3-5 Use of stable-isotope labeled cortisol as a biological internal standard: Evaluation of in vivo 11 β -HSD activity in humans

Akitomo Yokokawa, Hiromi Shibasaki, Yasuji Kasuya, Takashi Furuta

Department of Medicinal Chemistry and Clinical Pharmacy, School of Pharmacy,
Tokyo University of Pharmacy and Life Sciences

18:30 Banquet

September 26 (Friday)

9:00-10:40 Symposium 4 “Metabolomics in obesity and inflammation”

Organizer: Ryo Taguchi Chairs: Ryo Taguchi, Makoto Arita

S4-1 Metabolomics for abnormality of lipid metabolism

Ryo Taguchi ^{1,2}

¹ Department of Metabolome, Graduate school of Medicine, The University of Tokyo

² JST, CREST

S4-2 Metabolome analysis for biomarker discovery

Tomoyoshi Soga

Institute for Advanced Biosciences, Keio University

School of Medicine, Keio University

S4-3 Activation of Phgdh-dependent serine biosynthesis plays a pivotal role in the induction by aldehyde of cardioprotection against oxidative stress

Motoaki Sano ^{1,2}, Jin Endo ¹, Takaharu Katayama ¹

¹ Department of Regenerative Medicine and Advanced Cardiac Therapeutics, Keio University School of Medicine

² PRESTO

S4-4 Metabolism and functions of anti-inflammatory lipid mediators

Makoto Arita ^{1,2}

¹ Department of Health Chemistry, Graduate School of Pharmaceutical Sciences, University of Tokyo

² PRESTO, Japan Science and Technology Agency

10:40 Invited Lecture L2 (Chair: Ryo Taguchi)

Lipidomics in health and disease

Kim Ekroos

VTT Technical Research Centre of Finland, Espoo, Finland / Zora Biosciences, Espoo, Finland

11:20 <Break>

11:30 **“Isamu Matsumoto” Prize Lecture L3** (Chair: Yoshinao Wada)

The introduction of achievements of Past President, Professor Emeritus Akira Shimizu

– **Elucidations of etiologies and diagnoses of diseases by mass spectrometry** –

Toyofumi Nakanishi

Department of Clinical and Laboratory Medicine, Osaka Medical College **11:50**

JSBMS Junior Award Lecture L4 (Chair: Yoshinao Wada)

Studies on the formation of glutathione conjugates of bile acids by liquid chromatography/mass spectrometry

Kuniko Mitamura

Faculty of Pharmaceutical Sciences, Kinki University

12:10 **<Lunch>**

12:40 **<Poster Presentations>**

P1 Analyze urinary metabolic profile of ethylene glycol ingestion using GC/MS

Chunhua Zhang, Zonghai Ruan and Shiziko Komatsubara

Department of research and development, MILS International

P2 Negative ion electrospray ionization tandem mass spectrometric behavior of N-acetylcysteine conjugated bile acid 3-sulfates Analyze urinary metabolic profile of ethylene glycol ingestion using GC/MS

Toshihiro Sakai, Saai Watanabe, Kuniko Mitamura, Shigeo Ikegawa

Faculty of Pharmaceutical Sciences, Kinki University Chunhua Zhang,

Zonghai Ruan and Shiziko Komatsubara

Department of research and development, MILS International

P3 Tandem mass spectrometric analysis of acylcarnitines in lymphocytes incubated with deuterium-labeled fatty acids

Yosuke Shigematsu^{1,2}, Ikue Hata²

¹ Department of Health Science, Faculty of Medical Sciences, University of Fukui

² Department of Pediatrics, Faculty of Medical Sciences, University of Fukui

P4 Identification and quantification of nitrated proteins using mass spectrometry

Hiroki Tsumoto¹, Ryo Taguchi², Kohfuku Kohda¹

¹ Research Institute of Pharmaceutical Sciences, Musashino University

² Department of Metabolome, Graduate school of Medicine, The University of Tokyo

P5 Molecular diagnostic program for congenital disorders of glycosylation, CDG

Yoshinao Wada¹, Machiko Kadoya¹, Michiko Tajiri^{1,2}, Nobuhiko Okamoto¹

¹ Osaka Medical Center and Research Institute for Maternal and Child Health

² JST, CREST

P6 ESI-MS-MS determination of monomethylarsonic acid and dimethylarsinic acid after adduct formation with citric acid

Kayoko Minakata ¹, Masako Suzuki ², Osamu Suzuki ¹

¹ Department of Legal Medicine and

² Research Equipment Center, Hamamatsu University School of Medicine

P7 Evaluation of specific structures of IgA1 hinge glycopeptides in IgA nephropathy by mass spectrometry

Hiroko Odani ¹, Koichiro Yamamoto ¹, Sachiko Iwayama ¹, Hitoo Iwase ²,
Yoshiro Fujita ³, Satoshi Sugiyama ¹, Yoshiyuki Hiki ¹

¹ Fujita Health University School of Medicine

² Kitasato University School of Medicine

³ Toyota Memorial Hospital, Nephrology and Rheumatology

P8 Study on automated identification system for GC/MS analysis of urinary metabolites

Shuichi Kawana ¹, Katsuhiro Nakagawa ¹, Yuki Hasegawa ² and Seiji Yamaguchi ²

¹ Shimadzu Corporation

² Department of Pediatrics, Shimane University School of Medicine

P9 Analysis of the sulfide and the metabolite in hydrogen sulfide poisoning example

Kyoko Maebashi ¹, Kimiharu Iwadate ¹, Shuntaro Abe ¹, Kentaro Sakai ¹, Akihiro Takatsu ², Kenji Fukui ¹, Miwako Aoyagi ¹, Rieko Ochiai ^{1,3}

¹ Department of Forensic Medicine, The Jikei University School of Medicine

² Department of Social Medicine, Medical Research Center, Tokyo Jikeikai

³ Section of Forensic Medicine, Department of International Health Development, Division of Public Health Graduate School, Tokyo Medical and Dental University

P10 Analysis of Endocrine Substances in Human Saliva using LC/MS/MS

Yukiko Hirabayashi ^{1,2}, Atsushi Maki ^{1,2}, Hideaki Koizumi ¹

¹ Advanced Research Laboratory, Hitachi, Ltd

² JST/CREST

P11 Novel Strategy Involving Peptide MRM-based Assays and Chemistry for Targeted Quantitation of Biomarkers in Plasma

Takuichi Tsubata, Masato, Aoshima, Lydia M Nuwaysir, Christie L Hunter, Majorie Minkoff

Applied Biosystems

- P12 Mass spectrometry-based metabolomics of mesenteric lymph lipids in rats following hemorrhagic shock**
Tetsuyuki Kobayashi^{1,3}, Kaori Ogawa^{1,3}, Yuka Hashimoto¹, Junichi Aiboshi²
¹ Department of Biological Sciences, Graduate School of Humanities and Sciences, Ochanomizu University
² Department of Acute Critical Care and Disaster Medicine, Tokyo Medical and Dental University
³ JST, CREST
- P13 Analysis of knockout mice lacking oxidized phospholipid-hydrolyzing enzyme PAF-AH (II).**
Nozomu Kono^{1,2}, Yuka Arita^{1,2}, Yasukazu Yoshida³, Takao Inoue^{1,2}, Junken Aoki^{4,5}, Etsuo Niki³ and Hiroyuki Arai^{1,2}
¹ Graduate School of Pharmaceutical Science, The University of Tokyo
² CREST, JST,
³ Health Technology Research Center, AIST,
⁴ Graduate School of Pharmaceutical Science, Tohoku University,
⁵ PREST, JST
- P14 Rapid determination of 41 benzodiazepines and their metabolites, zolpidem and zopiclone in human plasma using ultra performance liquid chromatography-mass spectrometry**
Tomomi Ishida^{1,2}, Keiko Kudo², Makiko Hayashida³, Noriaki Ikeda²
¹ Eisai Co., Ltd. Drug Metabolism and Pharmacokinetics Research
² Department of Forensic Pathology and Sciences, Graduate School of Medical Sciences, Kyushu University
³ Department of Legal Medicine, Nippon Medical School
- P15 MassBank: Mass Spectral Database for Metabolome Analysis**
Hisayuki Horai^{1,2}, Takaaki Nishioka^{1,2}, Masanori Arita^{1,2,3,4}
¹ Institute for Advanced Biosciences, Keio University,
² JST-BIRD
³ Graduate School of Frontier Sciences, University of Tokyo
⁴ Plant Science Center, RIKEN
- P16 Global analysis of oxidized lipids using theoretically expanded MRM with LC-ESIMS/MS ~lipidomics for oxidative stress and inflammation~**
Hiroki Nakanishi^{1,2}, Yosuke Isobe³, Makoto Arita^{3,4}, Ryo Taguchi^{1,2}
¹ Department of Metabolome, Graduate school of Medicine, The University of Tokyo
² JST, CREST
³ Department of Health Chemistry, Graduate school of Pharm. Sciences, The University of Tokyo
⁴ JST, PRESTO

- P17 Determination of benzoylcarnitine and hippuric acid in patients taking benzoic acid**
Hironori Ohmi ¹, Yasuhiro Maeda ¹, Tetsuya Ito ², Yoko Nakajima ², Kyoko Yokoi ², Yukihisa Kurono ¹, Hajime Togari ², Naruji Sugiyama ³
¹ Graduate School of Pharmaceutical Sciences, Nagoya City University
² Graduate School of Medical Sciences, Nagoya City University
³ Aichi-Gakuin University, School of Pharmacy
- P18 Global analysis of triglycerides and application to obesity by AGF deficiency**
Kazutaka Ikeda^{1,2}, Yuichi Oike³, Takao Shimizu⁴, Ryo Taguch^{1,2}
¹ Department of Metabolome, Graduate School of Medicine, the University of Tokyo
² JST, CREST
³ Department of Molecular Genetics, Graduate School of Medical Sciences, University of Kumamoto
⁴ Department of Biochemistry and Molecular Biology, Graduate School of Medicine, the University of Tokyo
- P19 Reorganization of LipidBank as Wiki-based System**
Masanori Arita ¹, Kazuhiro Suwa ¹, Etsuko Yasugi ², Masahiro Nishijima ³
¹ Department of Computational Biology, Graduate School of Frontier Sciences, University of Tokyo
² Department of Metabolome, Graduate school of Medicine, University of Tokyo, JST CREST
³ National Institute of Health Sciences
- P20 The analysis of lipid change of apo E knockout mouse**
Mayuko Morita ^{1,2}, Hiroki Nakanishi ^{1,2}, Mayumi Kawabe ³, Ryo Taguchi ^{1,2}
¹ Department of Metabolome, Graduate School of Medicine, The University of Tokyo
² JST, CREST
³ Department of Pharmacology, Graduate School of Medicine, Nagoya City University
- P21 Identifications of familial pancreatic cancer-associated antigens and related antibodies by autoantibodiomics**
Toyofumi Nakanishi ¹, Kyoichi Takaori ², Christine Iacobuzio-Donahue ³, Shinichi Yachida ³, Ralph H Hruban ³, Yoshiharu Miyamoto⁴, Yoshihisa Fujita⁴, Yoko Tabushi ¹, Michihiko Tanigawa⁴ and Takayuki Takubo ¹
¹ Department of Clinical and Laboratory Medicine, ⁴ Department of General and Gastroenterological Surgery, Osaka Medical College
² Department of Hepato-Pancreato-Biliary Surgery and Transplantation, Kyoto University Graduate School of Medicine,
³ Department of Pathology and Oncology, John Hopkins University Hospital

- P22 Determination of an endogenous amine, 1-MeTIQ in postmortem human brain by GC-MS**
Hiroshi Ochi¹, Takeshi Hayashi¹, Hisanaga Kuroki¹, Ryoji Matoba¹, Shigeru Ohta², Kazuo Igarashi^{1,3}
¹ Graduate School of Medicine, Osaka University
² Graduate School of Biomedical Sciences, Hiroshima University
³ Kobe Analytical Research Center for Life Science
- P23 Discovery and validation of the protein biomarkers for tumor diagnosis: Statistical analyses of the liquid chromatography/tandem mass spectrometry data from the tissue proteomes**
Takao Kawakami^{1,2}, Atsushi Ogiwara², Takashi Hirano¹, Harubumi Kato³
¹ Department of Surgery, Tokyo Medical University
² Biomarker Mining Team, Medical ProteoScope Company
³ International University of Health and Welfare Graduate School
- P24 Analysis of guanidinoacetate by HPLC-MS/MS**
Toshihiro Shinka, Tomiko Kuhara
Division of Human Genetics, Medical Research Institute, Kanazawa Medical University
- P25 Enzyme evaluation of organic acid disorders using fibroblasts and ESI-MS/MS**
Yuichi Mushimoto¹, Yuki Hasegawa¹, Mitsuru Endo^{1,2}, Hironori Kobayashi¹, Li Hong¹, Jamiyan Purevsuren¹, Seiji Yamaguchi¹
¹ Department of Pediatrics, Shimane University Faculty of Medicine
² Department of Pediatrics, Matsue Red Cross Hospital
- P26 Analysis of lipid localization on tissue using mass spectrometry**
Hiroki Nakanishi^{1,2}, Yoko Tajima^{1,2}, Ryo Taguchi^{1,2}
¹ Department of Metabolome, Graduate school of Medicine, The University of Tokyo
² JST, CREST
- P27 Application of direct matrix-assisted laser desorption/ionization mass Spectrometry to biopsy analysis**
Nobuhiro Zaima¹, Yuki Sugiura², Aya Ohkuma³, Satomi Okahashi³, Satoru Noguchi³, Ichizou Nishino³, Thoru Ibi⁴, Fumiko Ozawa⁴, Kou Sahashi⁴, Mitsutoshi Setou^{1,5}
¹ Mitsubishi Kagaku Institute of Life Sciences
² Tokyo Institute of Technology
³ National Center of Neurology and Psychiatry
⁴ Aichi Medical University
⁵ Hamamatsu University School of Medicine

14:10-16:00 Symposium 5 “Mass spectrometry in the field of forensic medicine”

Organizer: Keizo Sato Chairs: Keizo Sato, Hitoshi Tsuchihashi

S5-1 Development and application of solid-phase extraction tips for gas chromatography-mass spectrometric determination of drugs and poisons in human biological samples

Chika Hasegawa ^{1,2}, Takeshi Kumazawa ², Keizo Sato ²

¹ Department of Legal Medicine, Tokyo Women's Medical University

² Department of Legal Medicine, Showa University School of Medicine

S5-2 A study of pretreatment method for trace amphetamine analysis in biological tissues by gas chromatography-mass spectrometry

Kenji Hara ¹, Shin-ichi Kubo ¹, Masayuki Kashiwagi ¹, Aya Matsusue ¹, Hiroshi Fujii ^{1,2} and Mitsuyoshi Kageura ¹

¹ Department of Forensic Medicine, Faculty of Medicine, Fukuoka University

² Narcotics Control Department Kokura Branch Office,
Kyushu Regional Bureau of Health and Welfare

S5-3 Identification of positional isomers of controlled drugs by GC-MS

Munehiro Katagi, Kei Zaitso, Noriaki Shima, Hitoshi Tsuchihashi
Forensic Science Laboratory, Osaka Prefectural Police H.Qs.

S5-4 Application of direct-injection HPLC-MS/MS method for analysis of drugs and metabolites in biological samples

Xiao-Pen Lee, Takeshi Kumazawa, Keizo Sato

Department of Legal Medicine, Showa University School of Medicine

S5-5 Application of inductively coupled plasma mass spectrometry to inorganic poisons

Shinichi Suzuki

National Research Institute of Police Science

S5-6 Examination of acetylene analysis from blood and urine using cryogenic oven with GC/MS

Masayuki Kashiwagi ¹, Kenji Hara ¹, Hiroshi Fujii ^{1,2}, Mitsuyoshi Kageura ¹, Mutsuo Takamoto ¹,

Aya Matsusue ¹, Tomoko Sugimura ¹, Shin-ichi Kubo ¹

¹ Department of Forensic Medicine, Faculty of Medicine, Fukuoka University

² Narcotics Control Department Kokura Branch Office,
Kyushu Regional Bureau of Health and Welfare

16:00 **<Break>**

16:20-18:10 **Symposium 6 “Studies on drug metabolism and side effects
by mass spectrometry”**

Organizer: Yutaka Hashimoto Chairs: Yutaka Hashimoto, Junko Iida

S6-1 Idiosyncratic drug toxicity - New Insight -

Toshihiko Ikeda ^{1,2}

¹ Laboratory of Drug Metabolism and Pharmacokinetics, Yokohama College of Pharmacy

² Department of Molecular Pharmacokinetics, Graduate School of Pharmaceutical Sciences, The University of Tokyo

**S6-2 Risk assessment of adverse drug reactions caused by reactive metabolites in drug
discovery**

Raku Shinkyō, Shinki Kawaguchi, Kazutomi Kusano, Masae Yamamoto, Yoshihisa Sano and Tsutomu Yoshimura

Drug Metabolism and Pharmacokinetics Research, Eisai Co., Ltd.

**S6-3 Reactive metabolite assessment in drug discovery and early development
- Case study in Chugai -**

Shinichi Arai ¹, Yoshinori Aso ², Yasuhiko Shiratori ¹

¹ Discovery Platform Technology Dept.,

² Pre-Clinical Research Dept., Chugai Pharmaceutical Co., Ltd

S6-4 The mass spectrometry for the risk assessment of toxicity in drug design

Haruo Iwabuchi

Drug Metabolism & Pharmacokinetics Research Laboratories Daiichi Sankyo CO., LTD.

18:10 **Closing Remarks**