

# Scientific Program

September 28

8:30 Opening Remarks

## Keynote Lecture

Chair **T. Ozawa**

KL-1 8:40 History and Outlooks for ESR/EPR: from Zavoisky to 2020. ESR/EPR Application in Biological Studies

**Anatoly F. Vanin**

Semyonov Institute of Chemical Physics, Russian Academy of Sciences, Russia

9:20 Break

## Session 1 (*In vivo* EPR oximetry)

Chair **H. Halpern, Y. Kotake**

O-1 9:30 Technical Developments in *in vivo* Radiofrequency EPR Imaging of Oxygen and Their Implications for Oncologic Application

**Howard J. Halpern**

Center for EPR Imaging *in vivo* Physiology, Departments of Radiation Oncology, University of Chicago, USA

O-2 9:50 Monitoring of Cardiac Stem Cell Therapy Using EPR Oximetry and MRI

**Periannan Kuppusamy**

Davis Heart and Lung Research Institute, Ohio State University, USA

O-3 10:10 Tumor pO<sub>2</sub> Guided Optimization of Fractionated Radiotherapy using Repeated *in vivo* Multi-site EPR Oximetry

**Huagang Hou**

Dartmouth Medical School, USA

O-4 10:25 Parallel Computing Approach for the reconstruction of 3-D multi-gradient Oximetric EPR using SPI Modality

**Christopher Daniel Dharmaraj**

Radiation Biology Branch, Center for Cancer Research, National Cancer Institute, NIH, USA

O-5 10:40 L-Band *in vitro* Oximetry Experiment with a 36 mm Bird Cage Resonator using Power Saturation Effect. En Route to *in vivo* EPR Imaging

**Yves-Michel Frapart**

CNRS, Univrsite Paris Descartes, France

10:55 Break

## Special Lecture

Chair **K. Takeshita**

SL-1 11:15 Some Recent Developments in Liposomes for Lipid Structural Studies and Physiological/Pharmaceutical Agent Delivery

**Robert C. MacDonald**

Northwestern University, USA

## Luncheon Seminar 1

Chair **K. Ichikawa**

LS-1 11:55 Technical Information of Analytical Instruments

**Yukio Mizuta  
Michio Shimizu  
Masaru Furuta**

JEOL, Ltd.,  
Oxford Instruments K.K.  
Shimadzu Corporation

## Session 2 (EPR Imaging and New Technology-1)

Chair

**R. Murugesan, H. Fujii**

- O-6 13:05 Genetic Algorithm for Adaptive, Wavelet-based Multiscale EMR Image Reconstruction  
**Ramachandran Murugesan** Madurai Kamaraj University, Madurai, India
- O-7 13:25 Superresolution EPR imaging: Phantom and Animal Experiments  
**Hiroshi Hirata** Yamagata University, Japan
- O-8 13:45 Imaging Studies on Biomarker Molecules in Small Animals by EPR/MRI System  
**Hirotsada Fujii** School of Health Sciences, Sapporo Medical University, Japan
- O-9 14:05 Development of L-band and X-band ESR Imaging Systems in China  
**Baolu Zhao** Institute of Biophysics, Academia Sinica, China
- O-10 14:25 Development of 1.5 Tesla OMRI Scanner with Circular-Transport-System  
**Kazuhiro Ichikawa** Department of Bio-function Science, Faculty of Pharmaceutical Sciences, Kyushu University, Japan

14:40 Break

## Session 3 (*in vivo* Redox Spectroscopy / Imaging in Biology and Medicine – 1)

Chair

**T. Herrling, H. Yasui**

- O-11 15:00 Evaluation of the Effect of External Influences on the Skin Detected by Quantitative EPR Spectroscopy  
**Thomas Herrling** Department of Medical Physics, University of Applied Sciences TFH Berlin, Germany
- O-12 15:20 Detection of Heavy-Ion Particle Radiation-Generated Free Radicals and Modifications of Their Biological Effects  
**Kazunori Anzai** Heavy-Ion Radiobiology Research Group, National Institute of Radiological Sciences, Japan
- O-13 15:40 Effects of HF Electromagnetic Radiation on the Central Structure of the Multifunctional Iron-Sulfur Protein of Adrenal Gland. A Quantum Biomedical Electronics Study  
**Tri Van Nguyen** Laboratory of Magnetic Resonance, Hanoi University of Technology, Vietnam
- O-14 15:55 Accurate and Sensitive Tooth Dosimetry to Quantify Exposures to Clinically Significant Doses of Ionizing Radiation using Non-invasive *in vivo* EPR Dosimetry  
**Ruhong Dong** Dartmouth Medical School, USA
- O-15 16:10 New Evaluation of Reactive Oxygen Species Generated in the UVB-Exposed Human Skin Equivalent Model by EPR Spin-Trapping Method with a Novel Spin Trap, CYPMPO  
**Hiroyuki Yasui** Department of Anal. and Bioinorg. Chem., Kyoto Pharmaceutical University, Japan

16:30 Break

## Session 4 (*in vivo* Redox Spectroscopy / Imaging in Biology and Medicine – 2)

Chair

**P. Kuppusamy, S. Oowada**

O-16 16:50 Evaluation of Redox Status in the Kidney of Experimental Chronic Renal Failure (CRF) Rats Using *in vivo* EPR

**Shigeru Oowada**

ASAO Clinic, Japan

O-17 17:10 Application of *in vivo* EPR/EPR Imaging for Kidney Diseases

**Aki Hirayama**

Tsukuba University of Technology, Japan

O-18 17:30 Olmesartan Reduces Oxidative Stress in the Brain and Prevents Reflex Sympathetic Activation in Stroke-Prone Spontaneously Hypertensive Rats

**Shuichiro Araki**

Department of Cardiovascular Medicine,  
Kyushu University Graduate School of  
Medical Sciences, Japan

O-19 17:45 EPR-Spectroscopy And Chemiluminescence Tests Of Antioxidant System In Pulmonology

**Vera G Podoprigorova**

Smolensk State Medical Academy, Russia

18:00 Free time

21:00 Poster viewing

## September 29

8:10 YIA Ceremony

### YIA Presentation

Chair

**K. Anzai**

O-20 8:20 Simultaneous Imaging of Tumor Oxygenation and Microvascular Permeability Using Hyperpolarized <sup>1</sup>H-MRI in Mice

**Shingo Matsumoto**

Radiation Biology Branch, National Cancer Institute, NIH, USA

O-21 8:35 Chymase Inhibitor Prevented Diabetic Nephropathy via Attenuation of Oxidative Stress and NAD(P)H Oxidase Expression in Diabetic Hamsters

**Yasutaka Maeda**

Department of Medicine and Bioregulatory Science, Graduate School of Medical Sciences, Kyushu University, Japan

O-22 8:50 Evaluation of Redox Status of Disease Model Mice by *in vivo* EPR Spectroscopy with Acyl-Protected Hydroxylamine Probes

**Shoko Okazaki**

Faculty of Pharmaceutical Sciences, Sojo University, Japan

O-23 9:05 Propofol Medium Chain Triglyceride/long Chain Triglyceride (MCT/LCT) Reduced the High Oxidative Stress in the Brain of Stroke-Prone Spontaneously Hypertensive Rat (SHRSP)

**Kyo Kobayashi**

Kanagawa Dental College, Japan

O-24 9:20 Monitoring of *in vivo* Redox status in Rats with Indomethacin-Induced Gastric Lesion using Overhauser-enhanced MRI

**Keiji Yasukawa**

Faculty of Pharmaceutical Sciences,  
Kyushu University, Japan

9:35 Break

## Keynote Lecture

Chair

**H. Maeda**

KL-2 9:40

Redox Regulation of Immune and Inflammatory Responses; Application of Thioredoxin to Therapeutic Direction

**Junji Yodoi**

Department of Biological Response  
Institute for Virus Research, Kyoto  
University, Japan

10:20 Break

## Session 5 (Spin Trap/Spin Label (Spin Probe) Synthesis)

Chair

**W. Trommer, M.C. Krishna**

O-25 10:40

p-Nitrostilbene-t-butyl-nitrone, a Novel Fluorescent Spin Trap for the Detection of ROS with Subcellular Resolution

**Wolfgang Trommer**

Department of Chemistry, Technical Uni-  
versity Kaiserslautern, Germany

O-26 11:00

pH-Sensitive Nitroxides for Site-directed Spin Labeling: Synthesis and Biomedical Ap-  
plications

**Alex I. Smirnov**

Novosibirsk Institute of Organic Chemi-  
stry, Russia

O-27 11:15

Progress in Functional EPR Probes: Trityl and Nitroxyl Radicals

**Valery V. Khrantsov**

The Ohio State University Medical Center,  
USA

O-28 11:30

Synthesis of 2,6-disubstituted and <sup>15</sup>N-labeled TEMPO Derivatives

**Ken-ichi Yamada**

Department of Bio-function Science, Fa-  
culty of Pharmaceutical Sciences, Kyushu  
University, Japan

11:45 Break

## Luncheon Seminar 2

Chair

**K. Takeshita**

LS-2 12:00

Oxidative Stress as a Double-edged Sword

**Etsuo Niki**

National Institute of Advanced In-  
dustrial Science and Technology,  
Japan

13:00 Break

13:20 Poster viewing

## Session 6 (Spin Trapping / Labeling in Biology and Medicine - 1)

Chair

**N. Morales, K. Tajima**

O-29 14:10

ESR Spin Trapping/Labeling for Evaluation of Iron Chelator Toxicity and Oxidative Stress in  $\beta$ -Thalassemia

**Noppawan Phumala Morales**

Department of Pharmacology, Faculty of  
Science, Mahidol University, Thailand

O-30 14:30

Stratum Corneum Lipid Mobility Investigated by A Slow-Tumbling Simulation for Electron  
Paramagnetic Resonance

**Kouichi Nakagawa**

Fukushima Medical University, Japan

O-31 14:45

Spin Label Method: Looking for Universal Approach to EPR Spectra Simulation of  
Complex Systems

**Valentin Vladimirovich Novikov**

Nesmeyanov Institute of Organoelement  
Compounds RAS, Russia

- |      |       |   |                        |   |
|------|-------|---|------------------------|---|
| O-32 | 15:00 | Characterization of Cu(II) Binding Site in C-terminal Domain of Mouse Prion : Site-directed Spin Labeling Study                           | <b>Osamu Inanami</b>   | Graduate School of Veterinary Medicine, Hokkaido University, Japan            |
| O-33 | 15:20 | Stopped-flow-ESR Study On Reduction Mechanisms of Nitroxide Radicals by Ascorbic acid   | <b>Kunihiko Tajima</b> | Department of Biomolecular Engineering, Kyoto Institute of Technology, Japan  |
| O-34 | 15:40 | Cell Membrane Fluidity Assays of Fluorescence Anisotropy and Excimer Formation in Indomethacin-treated Gastric Epithelial Cell-line RGM-1 | <b>Tsuyoshi Kaneko</b> | Graduate School of Comprehensive Human Sciences, University of Tsukuba, Japan |

15:55 Break

### **Session 7 (Spin Trapping / Labeling in Biology and Medicine - 2)**

**Chair A. Vanin, T. Akaike**

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|------|-------|---|----------------------------------|---|
| O-35 | 16:15 | Water-Soluble Iron Dithiocarbamate Complex Capacity of NO Level Quantification in Animal Organisms    | <b>Anatoly Fjodorovich Vanin</b> | Semyonov Institute of Chemical Physics, Russian Academy of Sciences, Russia                                   |
| O-36 | 16:35 | Influence of Acute Hypoxia-Ischemia to Nitric Oxide Level in Liver Tissue                             | <b>Natalia Chaykovskaya</b>      | Smolensk State Medical Academy, Russia  |
| O-37 | 16:50 | Signal Transduction by 8-nitro-cGMP Via Its Unique Redox Property and Post-Translational Modification | <b>Takaaki Akaike</b>            | Dept. of Microbiology, Graduate Sch. of Med. Sci., Kumamoto Univ., Japan                                      |
| O-38 | 17:10 | Nitric Oxide Mediates the Warburg Effect in Gastric Epithelial Cells                                  | <b>Hirofumi Matsui</b>           | Division of Gastroenterology, Graduate School of Comprehensive Human Sciences, University of Tsukuba, Japan   |
| O-39 | 17:25 | Peroxynitrite Produced in Human Osteosarcoma Cells Inhibits the Cell Proliferation                    | <b>Tomiko Mikuni</b>             | Dep. of Pathology and Clinical Laboratory, Osaka Medical Center for Cancer and Cardiovascular Diseases, Japan |

17:40 Break & Group Photo

18:30 Banquet

21:00 Poster viewing

September 30

### **Session 8 (Spin Trapping / Labeling in Biology and Medicine - 3)**

**Chair T. Sarna, K. Yamada**

- |      |      |   |                   |                                       |
|------|------|---|-------------------|---------------------------------------|
| O-40 | 8:30 | Photo-Oxidation of Spin Labels by Ru(III): a New ESR Tool for Electron Transfer Study | <b>Lev Weiner</b> | Weizmann Institute of Science, Israel |
|------|------|---|-------------------|---------------------------------------|

- O-41 8:50 Time-resolved and High Frequency EPR Study of Natural and Synthetic Melanin Pigments  
**Tadeusz Jan Sarna** Jagiellonian University, Poland
- O-42 9:10 Thiyl Radical Formation in the Mechanism of Reduction of Cobalamin(III) Using Glutathione and Dithiothreitol  
**Periakaruppan Thangiah Manoharan** SAIF, Indian Institute of Technology/Madras, India
- O-43 9:30 Dynamics of Unique Elements of Kinesin Motor and Muscular Troponin/Tropomyosin Switch Proteins Observed by Spin-Labeling Distance Measurements  
**Toshiaki Arata** Department of Biological Sciences, Graduate School of Science, Osaka University, Japan
- O-44 9:45 Photosensitizable Cellular Targets  
**Ronit Lavi** Department of Chemistry, Bar-Ilan University, Israel

10:00 Break

### Session 9 (EPR Imaging and New Technology-2)

**Chair R. Mason, M.-C. Lee**

- O-45 10:20 Determination of the Distribution of Protein Radicals in Cells and Tissue by Immuno-Spin Trapping  
**Ronald Paul Mason** NIEHS/NIH, USA
- O-46 10:40 Practical Application of Microwave-Transmission / -Reflection Type Electromagnetic Horn to ESR Spectrometer  
**Tadashi Kobayashi** Faculty of Engineering, Oita University, Japan
- O-47 11:00 A New strategy for Fast Radiofrequency CW EPR Imaging: Direct Detection with Rapid Scan and Rotating Gradients  
**Sankaran Subramanian** National Institutes of Health Radiation Biology Branch, Center for Cancer Research, National Cancer Institute, USA
- O-48 11:15 EPR Spin Trapping Determination of Antioxidant's Scavenging Capacity Against Multiple Free-radical Species, Using New Free-radical Generating Methods  
**Yashige Kotake** Oklahoma Medical Research Foundation, USA
- O-49 11:35 Assessment of Antioxidant Property of Drugs or Foods using by Electron Spin Resonance (ESR) Spectroscopy  
**Masaichi-Chang-il Lee** Department of Clinical Care Medicine, Division of Pharmacology and ESR Laboratories, Kanagawa Dental College, Japan
- O-50 11:55 ESR Imaging Evaluation of FA<sub>2</sub>PF<sub>6</sub> Single Crystal Micelle Nano Probe Agents distribution in Tumor-bearing Mice  
**Toshiyuki Usagawa** Advanced Research Laboratory, Hitachi, Ltd., Japan

12:10 Closing Remarks

## Poster session

P-1	Non-invasive Monitoring of Liposome Pharmacokinetics by Overhauser MRI <b>Hikaru Arita</b>	Department of Bio-function Science, Graduate School of Pharmaceutical Sciences, Kyushu University, Japan
P-2	Dynamic Nuclear Polarization Studies of Redox-Sensitive Nitroxyl Spin Probes in Liposomal Solution <b>A. M.F. Benial</b>	Kyushu University, Japan
P-3	Nanosecond Resolution Pulse Programmer for RF FT- EPR Imaging <b>Nallathamby Devasahayam</b>	National Cancer Institute, National Institutes of Health, USA
P-4	Arsenic Trioxide Enhances Tumor Oxygenation by Decreasing Oxygen Consumption <b>Caroline Diepart</b>	University of Louvain, Biomedical Magnetic Resonance Unit, Belgium
P-5	A New EPR Oximetry Protocol to Estimate The Tissue Oxygen Consumption <i>in vivo</i> <b>Caroline Diepart</b>	University of Louvain, Biomedical Magnetic Resonance Unit, Belgium
P-6	EPR Spin-Trapping of Superoxide Radical Anion in Cells en Route to <i>in vivo</i> EPR Imaging <b>Yves-Michel Frapart</b>	UMR CNRS 8601, Univrsite Paris Descartes, France
P-7	Hyperbilirubinemia and Biliverdin Administration Ameliorates Diabetic Nephropathy Via Inhibition of Oxidative Stress in Rodent Models of Diabetes <b>Masakazu Fujii</b>	Kyushu University, Japan
P-8	High-throughput Metabolic Profiling of Leukemia Cells <b>Yoshinori Fujimura</b>	Innovation Center for Medical Redox Navigation, Kyushu University, Japan
P-9	<i>In vivo</i> Analysis Oxidative Stress in The Brain and Memory Dysfunction in Experimental Uremic Mice <b>Kiichiro Fujisaki</b>	Department of Medicine and Clinical Science, Graduate School of Medical Sciences, Kyushu University, Japan
P-10	Non-Invasive Detection of Radical Generation in Platelet Induced by Collagen <b>Jin-yi Han</b>	Kyungpook National University, Korea
P-11	<i>In vivo</i> EPR Detected Pathologically Important OH Radical in Lung Injuries Caused by Diesel Exhaust Particles <b>Jin-yi Han</b>	Kyungpook National University, Korea
P-12	The Role and Effect of CV159-Ca <sup>2+</sup> /Calmodulin Blockade on Redox Status Hepatic Ischemia-Reperfusion Injury in Rodentia(Rats&Mice) using <i>in vivo</i> EPR Imaging and Ex Vivo EPR <b>Keizo Hataji</b>	St. Marianna School of Medicine, Japan
P-13	Endothelial Cell Protective Activity of Nitrosonifedipine <b>Yuya Horinouchi</b>	Department of Pharmacology, Institute of Health Biosciences, The University of

P-14	Brain Redox Imaging Using Blood Brain Barrier Permeable Nitroxide MRI Contrast Agent	Tokushima, Japan <b>Fuminori Hyodo</b> Innovation Center for Medical Redox Navigation, Kyushu University, Japan
P-15	Imaging <i>in vivo</i> Redox Status in Tumor using OMRI / Nitroxyl Spin Probe Technique	<b>Kazuhiro Ichikawa</b> Kyushu University, Japan
P-16	Alteration of Myocardial and Systemic Oxidative Stress ~A Role of Free Radical from Mitochondrial Respiratory Chain in Heart Failure~	<b>Tomomi Ide</b> Department of Cardiovascular Medicine, Kyushu University, Japan
P-17	Evaluation of Trapping Ability of Cyclic- and Liner-spin Traps Containing Diphenylphosphinoyl group	<b>Hidefumi Iwashita</b> Department of Chemistry, Fukuoka University, Japan
P-18	Applicability of New Spin Trap Agent, 5-diphenylphosphinoyl-5-methyl-4,5-dihydro-3H-pyrrole N-oxide, in Biological System	<b>Tomohiro Karakawa</b> Division of Pharmacology and Therapeutics, Graduate School of Medicine and Pharmaceutical Sciences, and Center for Clinical Pharmaceutical Sciences, Kumamoto University, Japan
P-19	The Effect of Glucose on Spin Label Reduction in Healthy and Diabetic Blood Human	<b>Asako Kawamori</b> AGAPE-Kabutoyama Institute of Medicine, Japan
P-20	Stability Evaluation for 2,6-substituted TEMPO Derivatives in the Reduction Process	<b>Yuichi Kinoshita</b> Kyushu University, Japan
P-21	Challenges in Controlling Magnetic Field in Ultra Fast Direct Detected EPR Imaging	<b>Janusz Koscielniak</b> NCI-Frederick, USA
P-22	Spin Trap Studies of Reactive Oxygen Species (ROS) Detected in Eale's Disease and Effect of Iron Chelation	<b>Periakaruppan Thangiah Manoharan</b> SAIF, Indian Institute of Technology/Madras, India
P-23	On the Use of ESR (Electron Spin Resonance) Spectroscopy Method for Detection of Irradiated Foods	<b>Toshiki Masumizu</b> Faculty of Pharmaceutical Sciences, Sojo University, Japan
P-24	Analysis of Free Radical Reactions in an Aqueous Sample Caused by Heavy-ion (carbon) Beam Irradiation	<b>Ken-ichiro Matsumoto</b> National Institute of Radiological Sciences, Japan
P-25	Scavenging Activity of Indoxyl Sulfate Against Superoxide Anion Radicals	<b>Katsumi Mera</b> Graduate School of Pharmaceutical Sciences, Kumamoto University, Japan

P-26	Detection of Radicals Formed in the Reaction Mixtures of Ram Seminal Vesicle Microsomes with Arachidonic acid	<b>Katsuyuki Minakata</b>	Department of Chemistry, Wakayama Medical University, Japan
P-27	Superoxide Scavenging Activity of Pirfenidone-iron Complex	<b>Yoshihiro Mitani</b>	Division of Pharmacology and Therapeutics, Graduate School of Medicine and Pharmaceutical Sciences, and Center for Clinical Pharmaceutical Sciences, Kumamoto University, Japan
P-28	Hydroxyl Radical Scavenging Activity of Some Polyphenols in the Reaction Mixture of Xanthone under UVA Irradiation	<b>Hiroko Mori</b>	Department of chemistry, Wakayama Medical University, Japan
P-29	EPR Probes for Oxidative Stress at Membrane and Mitochondria	<b>Hidehiko Nakagawa</b>	Graduate School of Pharmaceutical Sci., Nagoya City University, Japan
P-30	Can Intrinsic Stable Melanin Radical in Hair be an Indicator of Skin Carcinogenesis?	<b>Kozo Nakai</b>	Department of Dermatology, Faculty of Medicine, Kagawa University, Japan
P-31	Oxidation of Phosphorus Containing Nitron-type Spin Traps with Gold(III) Ion	<b>Akira Nakajima</b>	Department of Medical Science, University of Miyazaki, Japan
P-32	Evaluation of Antioxidative Ability of Antioxidative Food Factors by EPR Spin-trapping, Stopped-flow Kinetic Analysis, and Mitochondrial ROS Assay	<b>Ikuo Nakanishi</b>	National Institute of Radiological Sciences, Japan
P-33	Redox Regulation of Radiation-induced Cytochrome-c Release from Mitochondria in Human Lung Carcinoma A549 Cells	<b>Aki Ogura</b>	Laboratory of Radiation Biology, Department of Environmental Veterinary Medical Sciences, Graduate School of Veterinary Medicine, Hokkaido University, Japan
P-34	Radical Reduction and Production of Hydrated Electrons by Methyl Gallate Irradiated with Ultraviolet Light	<b>Shoko Okazaki</b>	Faculty of Pharmaceutical Sciences, Sojo University, Japan
P-35	Stability of Spin Adducts of Three Spin Traps, DMPO, DPPMPO, and CYPMPO in the Presence of a Reductant and Superoxide Detection Abilities in Human Oral Polymorphonuclear Leukocytes	<b>Keita Saito</b>	New Industry Creation Hatchery Center, Tohoku University, Japan
P-36	Non-invasive Imaging of Redox Status in Methamphetamine-treated Rat Brain using Overhauser-enhanced MRI	<b>Takeshi Shiba</b>	Department of Bio-function Science, Faculty of Pharmaceutical Sciences, Kyushu University, Japan

P-37	The Role of Tumor Associated Macrophages (TAMs) in Growth, Angiogenesis, Lymphangiogenesis, and Redox Responses in Cancer	<b>Tomoya Sugimoto</b>	Department of Pharmaceutical Oncology, Graduate School of Pharmaceutical Science, Kyushu University, Japan
P-38	Functional Assessments of Neutrophils in Pneumonia by EPR Spin Trapping and Clinical Assays	<b>Mika Tada</b>	New Industry Creation Hatchery Center (NICHe), Tohoku University, Japan
P-39	Selected Region ESR Spectroscopy using Magnetic Field Gradient Modulated by a Triangular Wave	<b>Mika Tada</b>	Graduate School of Science and Engineering, Yamagata University, Japan
P-40	Effect of Angiotensin II on Iron(II) Turnover in HGEC	<b>Koichiro Tsuchiya</b>	Department of Medical Pharmacology, Institute of Health Biosciences, The University of Tokushima, Japan
P-41	Analysis of Interaction of Tropomyosin and Actin on Muscle Thin Filament	<b>Keisuke Ueda</b>	Department of Biological Sciences, Graduate School of Science, Osaka University, Japan
P-42	ESR Study of New Type of Targeted Bioreductive Drugs	<b>Lev Weiner</b>	Weizmann Institute of Science, Israel
P-43	<i>In vivo</i> Detection of Free Radicals Induced by Diethylnitrosamine (DEN) in Rat	<b>Ken-ichi Yamada</b>	Faculty of Pharmaceutical Sciences, Kyushu University, Japan
P-44	Synthesis of Nitroxyl Radicals for Overhauser-enhanced Magnetic Resonance Imaging	<b>Toshihide Yamasaki</b>	Faculty of Pharmaceutical Sciences, Kyushu University, Japan
P-45	Analysis of Oxidative Stress in the Excess Dopamine Metabolism using Microdialysis Technique and X-band ESR Spectroscopy	<b>Mayumi Yamato</b>	Innovation Center for Medical Redox Navigation, Kyushu University, Japan
P-46	Development of Separable Analysis for Free Radical Reaction in Transient Middle Cerebral Occlusion Mice	<b>Mayumi Yamato</b>	Innovation Center for Medical Redox Navigation, Kyushu University, Japan
P-47	Design of Polymeric Nanoparticle with Nitroxyl Radicals in the Core for Potential Tumor-Specific <i>in vivo</i> EPR Imaging	<b>Toru Yoshitomi</b>	Graduate School of Pure and Applied Sciences, University of Tsukuba, Japan
P-48	Wide Gap 200MHz pulse ESR-CT Systems by SmCo Permanent Magnets	<b>Toshiyuki Usagawa</b>	Advanced Research Laboratory, Hitachi, Ltd., Japan