

## Stomatal research frontline -From molecules and cells to individual organisms-

Date Sun., March 17, 9:30–12:30

Venue Room X

**Organizers:** Yuki Hayashi (Grad.Sch.Sci., Nagoya Univ.) / Yoshiyuki Murata (Grad. Sch. Environ. Life Nat. Sci. and Tech., Okayama. Univ.) / Izumi Mori (IPSR, Okayama Univ.)

Recent research has revealed the molecular mechanism of stomatal movements and the physiological and ecological significance of stomata. In this symposium, we aim to present the latest findings from the molecular level to ecological levels and introduce a new perspective based on deep learning. We also hope to discuss the future directions of stomatal research and its role in agriculture.

9:30	Introduction Yuki Hayashi
9:33	S01-1 Regulation of plasma membrane ion channels in guard cells <u>Shintaro Munemasa</u> , Yoshiyuki Murata (Grad. Sch. Environ. Life Nat. Sci. and Tech., Okayama. Univ.)
9:51	S01-2 Carbon dioxide sensing and signal transduction mechanisms in plant stomata <u>Yohei Takahashi</u> (ITbM, Nagoya U.)
10:09	S01-3 A new perspective on the features and functions of guard cell chloroplasts through comparative proteomic analysis <u>Juntaro Negi</u> (Fac. Sci., Kyushu Univ.)
10:27	S01-4 Signaling network in light-induced stomatal opening <u>Atsushi Takemiya</u> (Grad. Sch. Sci. Tech. Innov., Yamaguchi Univ.)
10:45	S01-5 Signal transduction in stomatal opening and control of stomatal aperture <u>Yuki Hayashi</u> <sup>1</sup> , Kohei Fukatsu <sup>1</sup> , Toshinori Kinoshita <sup>1,2</sup> ( <sup>1</sup> Grad. Sch. Sci., Nagoya Univ., <sup>2</sup> ITbM, Nagoya Univ.)
11:03	S01-6 Stomatal control through leaf hydraulic traits <u>Yusuke Mizokami</u> , Nanae Takai, Ko Noguchi (Univ. Tokyo Pharm. Life Sci.)
11:21	S01-7 CO <sub>2</sub> Transport by Aquaporin <u>Shaila Shermin Tania</u> , Izumi Mori (INSTITUTE OF PLANT SCIENCE AND RESOURCES)
11:39	S01-8 Stomatal Dynamics and Water Use Characteristics of C <sub>3</sub> and C <sub>4</sub> Crops from Leaf to Field Scale <u>Daisuke Sugiura</u> (Grad. Sch. Bioagri., Univ. Nagoya)
11:57	S01-9 Recent Methods in Stomatal Trait Phenotyping <u>Yosuke Toda</u> (phytometrics co ltd)
12:15	Discussion

## Interactions between Plants and Atmosphere: from Atom to Ecosystem

Date Sun., March 17, 9:30–12:30

Venue Room Y

Co-sponsored by Transformative Research Areas (A) “photosynthesis ubiquity” and “plant-climate feedback”

Organizers: Atsushi J. Nagano (Ryukoku Univ. / Keio Univ.) / Nobutoshi Yamaguchi (NAIST) / Yukako Hihara (Saitama Univ.) / Wataru Sakamoto (Okayama Univ.)

Plants and the atmospheric environment interact through photosynthesis and biogenic volatile organic compound (BVOC) emissions. Recent technological innovations have opened up the possibility of understanding these interactions from the atomic level to the ecosystem level. In this symposium, these interactions will be discussed in terms of “photosynthesis ubiquity” and “plant-climate feedback”.

Chairperson: Wataru Sakamoto

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| 9:30 | Introduction   |
| 9:35 | S02-1 A community effort to understand the evolutionary principles of photosynthetic antenna organization in green plants<br><u>Shinichiro Maruyama</u> (Grad. Sch. Front. Sci., Univ. Tokyo)        |
| 9:55 | S02-2 Toward quantitative modeling of environmental responses in BVOC emissions<br><u>Atsushi J. Nagano</u> <sup>1,2</sup> ( <sup>1</sup> Fac. of Agr., Ryukoku Univ., <sup>2</sup> IAB, Keio Univ.) |

Chairperson: Yukako Hihara

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| 10:15 | S02-3 Photosynthetic responses of overwintering evergreen leaves<br><u>Ryouichi Tanaka</u> (Inst Low Temp Sci, Hokkaido Uni)                            |
| 10:35 | S02-4 Heat adaptation by transcription factors, epigenome, and bVOCs in plants<br><u>Nobutoshi Yamaguchi</u> (Nara Institute of Science and Technology) |
| 10:55 | Break   |

Chairperson: Nobutoshi Yamaguchi

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| 11:00 | S02-5 Energy network analysis using molecular structure: Coexistence of chlorophyll <i>a</i> and <i>b</i> to optimize the light-harvesting system<br><u>Eunchul Kim</u> <sup>1</sup> , <u>Daekyung Lee</u> <sup>3</sup> , <u>Souichi Sakamoto</u> <sup>2</sup> , <u>Akihito Ishizaki</u> <sup>2</sup> , <u>Jun Minagawa</u> <sup>1</sup> , <u>Heetae Kim</u> <sup>3</sup> ( <sup>1</sup> NIBB, <sup>2</sup> IMS, <sup>3</sup> KENTECH) |
| 11:20 | S02-6 Real-time measurements of biogenic volatile organic compounds using PTR-MS<br><u>Kanako Sekimoto</u> (Grad. Sch. Nanobiosci., Yokohama City Univ.)   |

Chairperson: Atsushi J. Nagano

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| 11:40 | S02-7 Light harvesting complexes of model organisms and other organisms<br><u>Shin-ichiro Ozawa</u> (IPSR, Okayama Univ.)   |
| 12:00 | S02-8 Biochemical properties of isoprene synthase and its physiological role in plants<br><u>Kazufumi Yazaki</u> , <u>Ryosuke Munakata</u> , <u>Sora Koita</u> (RISH, Kyoto University) |
| 12:20 | Discussion  |

## Unveil the enigma of plant actuators: exploring molecular and evolutionary mechanisms and engineering applications

**Date** Sun., March 17, 9:30–12:10

**Venue** Room Z

**Organizers:** Moe Yamada (Grad. Sch. Sci., Nagoya Univ.) / Daisuke Inoue (Fac. Des., Kyushu Univ.) / Yoshihisa Oda (Grad. Sch. Sci., Nagoya Univ.)

Plants have evolved unique actuators to regulate material transport, cellular dynamics and organ morphogenesis. In this symposium, young researchers will discuss the regulatory mechanisms of the unique actuators in plants from various aspects, such as molecules involved in regulation, evolutionary insights, and engineering applications.

9:30	<p>Opening remarks Moe Yamada</p> <p>Chairperson: Daisuke Inoue</p>
9:35	<p>S03-1 The mechanism of cell plate formation <u>Moe Yamada</u> (Grad. Sch. Sci., Nagoya Univ.)</p>
10:00	<p>S03-2 Flagella and the molecular evolution of related factors in plant species <u>Shizuka Koshimizu</u> (Biological Networks, NIG)</p>
10:25	<p>S03-3 Exploring autolytic mechanisms of sieve elements with an improved phloem induction system <u>Yuki Sugiyama</u><sup>1,2</sup>, Yoshihisa Oda<sup>2</sup> (<sup>1</sup>IAR, Nagoya Univ., <sup>2</sup>Grad. Sch. Biol. Sci., Nagoya Univ.)</p> <p>Chairperson: Moe Yamada</p>
10:50	<p>S03-4 Study of plant cytoskeletons using cell-free systems <u>Daisuke Inoue</u><sup>1</sup>, Takema Sasaki<sup>2</sup>, Saku Kijima<sup>3</sup>, Do Huong<sup>4</sup>, Yoshihisa Oda<sup>2</sup>, Tomomichi Fujita<sup>4</sup> (<sup>1</sup>Fac. Des., Kyushu Univ., <sup>2</sup>Grad. Sch. Sci., Nagoya Univ., <sup>3</sup>AIST, <sup>4</sup>Grad. Sch. life Sci., Hokkaido Univ.)</p>
11:15	<p>S03-5 What we can learn from plants to design a robot? -The motion mechanism of the carnivorous plants and robots inspired by them <u>Xiangli Zeng</u> (OSAKA UNIVERSITY)</p>
11:40	<p>S03-6 Gravitropic signal input and conversion in Arabidopsis Root Gravitropism <u>Takeshi Nishimura</u>, Hiromasa Shikata, Shogo Mori, Miyo Terao-Morita (National Institute for Basic Biology)</p>
12:05	<p>Closing remarks Daisuke Inoue</p>

## Genetic transfer technology for plants and its associated sciences

Date Sun., March 17, 14:00–17:00

Venue Room X

Co-sponsored by JST COI-Next

Organizers: Keiji Numata (RIKEN CSRS / Kyoto University) / Shinya Hagihara (RIKEN CSRS)

The aim of this symposium is to promote understanding of the current state of plant transformation and transgenic technology as well as related peripheral science, chemical biology, and nanotechnology, by inviting lecturers from inside and outside the Japanese Society of Plant Physiologists (JSPP). We also tried to involve international scientists who work in Japan in the related research fields.

14:00	<p>Opening remarks Keiji Numata</p> <p>Chairperson: Makoto Hayashi</p>
14:05	<p>S04-1 Building physics-principle-based gene delivery methods toward the versatile gene editing in plants <u>Shigeo S. Sugano</u> (Bioproduction Research Institute, AIST)</p>
14:25	<p>S04-2 Molecular strategies for improving plant regeneration efficiencies <u>Keiko Sugimoto</u>, Akira Iwase, Yu Chen (RIKEN CSRS)</p>
14:45	<p>S04-3 Plant genome editing using CRISPR/Cas3 and CRISPR/Cas12f <u>Hiroaki Saika</u><sup>1</sup>, <u>Satoru Sukegawa</u><sup>1</sup>, <u>Osamu Nureki</u><sup>2</sup>, <u>Shuhei Yasumoto</u><sup>3</sup>, <u>Toshiya Muranaka</u><sup>3</sup>, <u>Kazuto Yoshimi</u><sup>4</sup>, <u>Tomoji Mashimo</u><sup>4</sup>, <u>Seiichi Toki</u><sup>1,5,6,7</sup> (<sup>1</sup>Inst. Agrobiol. Sci., NARO, <sup>2</sup>Grad. Sch. Sci., Univ. Tokyo, <sup>3</sup>Grad. Sch. Eng., Osaka Univ., <sup>4</sup>Inst. Med. Sci., Univ. Tokyo, <sup>5</sup>Grad. Sch. Nanobiosci., Yokohama City Univ., <sup>6</sup>KIBR, Yokohama City Univ., <sup>7</sup>Fac. Agri., Ryukoku Univ.)</p> <p>Chairperson: Keiji Numata</p>
15:05	<p>S04-4 Targeted base editing in the plant organellar genome <u>Issei Nakazato</u>, Shin-ichi Arimura (Grad. Sch. Agri. Life Sci., Univ. Tokyo)</p>
15:20	<p>S04-5 Mitochondria-targeted TALEN-mediated gene knockout and reorganization of mitochondrial genome in Tadukan-type cytoplasmic male sterile rice <u>Ayumu Takatsuka</u><sup>1</sup>, <u>Tomohiko Kazama</u><sup>2</sup>, <u>Shin-ichi Arimura</u><sup>3</sup>, <u>Kinya Toriyama</u><sup>1</sup> (<sup>1</sup>Grad. Sch. Agri. Sci., Tohoku Univ., <sup>2</sup>Fac. Agri., Kyushu Univ., <sup>3</sup>Grad. Sch. Agri. Life Sci., Univ. Tokyo)</p>
15:35	<p>Break</p> <p>Chairperson: Taku Demura</p>
15:40	<p>S04-6 Organelle-targeted cargo delivery within plants using carbon-based nanocarriers <u>Simon Sau Yin Law</u><sup>1</sup>, <u>Keiji Numata</u><sup>1,2</sup> (<sup>1</sup>RIKEN CSRS, <sup>2</sup>Kyoto University Dept. of Engineering)</p>
15:55	<p>S04-7 Exogenous and endogenous genetic transfer to organelles <u>Masaki Odahara</u><sup>1</sup>, <u>Keiji Numata</u><sup>1,2</sup> (<sup>1</sup>CSRS, RIKEN, <sup>2</sup>Grad. Sch. Eng., Kyoto Univ.)</p>
16:10	<p>S04-8 Advancing plant transformation techniques for engineering of economically-related genes in wild strawberries <u>Chonprakun Thagun</u>, <u>Yutaka Kodama</u> (C-Bio, Utsunomiya Univ.)</p>
16:25	<p>S04-9 Improving efficiency of the <i>Agrobacterium</i>-mediated transformation by drugs <u>Yutaro Shimizu</u><sup>1</sup>, <u>Kotaro Nishiyama</u><sup>1</sup>, <u>Jekson Robertlee</u><sup>1</sup>, <u>Shigeo S. Sugano</u><sup>2</sup>, <u>Shinya Hagihara</u><sup>1</sup> (<sup>1</sup>Center for Sustainable Resource Science, RIKEN, <sup>2</sup>Bioproduction Research Institute, AIST)</p>
16:40	<p>S04-10 Phenylboronic Acid-Functionalized Micelles Dual-Targeting Boronic Acid Transporter and Polysaccharides for siRNA Delivery into a Model Brown Alga, <i>Ectocarpus siliculosus</i> <u>Naoto Yoshinaga</u><sup>1,2</sup>, <u>Takaaki Miyamoto</u><sup>1</sup>, <u>Atsuko Tanaka</u><sup>3</sup>, <u>Keiji Numata</u><sup>1,2,4</sup> (<sup>1</sup>Center for Sustainable Resource Science, RIKEN, <sup>2</sup>IAB, Keio Univ., <sup>3</sup>Faculty of Sci., Univ. of the Ryukyus, <sup>4</sup>Grad. Sch. Eng., Kyoto Univ.)</p>
16:55	<p>Closing remarks Shinya Hagihara</p>

## Creating new molecules to manipulate plant functions

**Date** Sun., March 17, 14:00–17:00

**Venue** Room Y

**Co-sponsored by JST PRESTO “Function and regulation of plant molecules”**

**Organizers:** Kazuhiko Nishitani (Fac Sci, Kanagawa Univ.) / Tomoko Hirano (Grad. Sch. of Life and Env. Sci., Kyoto Pref. Univ.)

Plants have evolved a wide variety of unique metabolic systems as adaptation strategies to the terrestrial environment and produce a large number of molecular species. Most of them, however, remain unidentified or unused. This PRESTO project aims to discover their new functions and explore their effective use and to develop innovative technologies. At this symposium, we will report the latest findings from this research project.

Chairperson: Tomoko Hirano

14:00	S05-1	Creating new molecules to manipulate plants <u>Kazuhiko Nishitani</u> (Kanagawa Univ. Fac. Sci.)
14:05	S05-2	Creation of structurally novel plant molecules with organic chemistry <u>Kei Murakami</u> (Sch. Sci., Kwansei Gakuin Univ.)
14:35	S05-3	Establishment of efficient combinatorial biosynthesis by co-localization of enzymes <u>Takahiro Mori</u> (Grad. Sch. Pharm. Sci. The Univ. Tokyo)
15:05	S05-4	Deciphering plant cell totipotency by small molecules <u>Akira Iwase</u> <sup>1,2</sup> ( <sup>1</sup> RIKEN CSRS, <sup>2</sup> JST PRESTO)
15:35		Break
15:45	S05-5	Manipulation of arbuscular mycorrhizal fungi with plant molecules <u>Hiromu Kameoka</u> (CAS CEMPS)
16:15	S05-6	The spatiotemporal control of root defense responses emerging from the tissue formation of the root cap <u>Shunsuke Miyashima</u> (Res. Inst. Biores. Biotech., Ishikawa Pref. Univ.)
16:45		General discussion Kazuhiko Nishitani, Tomoko Hirano

## Local and systemic signaling for environmental responses in plants

**Date** Sun., March 17, 14:00–17:00

**Venue** Room Z

**Co-sponsored by Grant-in-Aid for Transformative Research Areas (A) Multi-layered regulatory system of plant resilience under fluctuating environment**

**Organizers:** Mika Nomoto (Centr. Gene Res., Nagoya Univ.) / Michitaka Notaguchi (Grad. Sch. Sci, Kyoto Univ., Biosci. Biotech. Cent, Nagoya Univ.)

The ability of plants to adapt to ever-changing environments plays a major role in survival. In this symposium, we will provide the latest insights into the strategies of plant environmental responses and their molecular mechanisms, ranging from the initial perception to the systemic intercellular signaling pathway.

Chairperson: Mika Nomoto

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| 14:00 | Opening remarks   |
| 14:05 | <p>S06-1 Mechanical stimuli-induced immunity initiated by epidermal trichome cells<br/> <u>Mika Nomoto</u><sup>1,2,3</sup>, Yu Saito<sup>4</sup>, Tomoko Suzuki<sup>1</sup>, Kiminori Toyooka<sup>5</sup>, Yasuomi Tada<sup>1,2</sup> (<sup>1</sup>Centr. Gene Res., Nagoya Univ., <sup>2</sup>Grad. Sch. Sci., Nagoya Univ., <sup>3</sup>PRESTO, JST, <sup>4</sup>Dept. Biol. Sci., Grad. Sch. Sci., Nagoya Univ., <sup>5</sup>RIKEN CSRC)</p> |
| 14:25 | <p>S06-2 Regulatory mechanisms of plant growth phase transition and source-sink functions in response to nutrient availability<br/> <u>Takeo Sato</u><sup>1</sup>, Miho Sanagi<sup>1,2</sup>, Junpei Takagi<sup>1</sup> (<sup>1</sup>Fac. Sci., Hokkaido Univ., <sup>2</sup>CRIS, Hokkaido Univ.)</p>   |
| 14:45 | <p>S06-3 Towards understanding the modulation mechanism of the senescence initiation by the novel receptor-like kinase family<br/> <u>Asuka Higo</u><sup>1,2</sup>, Tamami Kamiya<sup>2</sup>, Koji Uda<sup>2</sup>, Naoyuki Uchida<sup>1,2</sup> (<sup>1</sup>Center for Gene Research, Nagoya Univ., <sup>2</sup>Grad. Sch. Sci., Nagoya Univ.)</p>   |
| 15:05 | <p>S06-4 Rice flood tolerance through phase transition of stem elongation<br/> <u>Keisuke Nagai</u>, Motoyuki Ashikari (Biosci. Biotech. Ctr., Nagoya Univ.)</p>  |
| 15:25 | Break time  |

Chairperson: Michitaka Notaguchi

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| 15:35 | <p>S06-5 A peptide signaling regulates root nodule symbiosis and nitrogen homeostasis<br/> <u>Takuya Suzuki</u><sup>1,2</sup> (<sup>1</sup>Fac. Life. Sci., Univ. Tsukuba, <sup>2</sup>T-PIRC, Univ. Tsukuba)</p>   |
| 15:55 | <p>S06-6 Integration of shoot-derived polypeptide signals by root TGA transcription factors is essential for survival under fluctuating nitrogen environments<br/> Ryutaro Kobayashi, <u>Yuri Ohkubo</u>, Mai Izumi, Ryosuke Ota, Keiko Yamada, Yoko Hayashi, Yasuko Yamashita, Saki Noda, Mari Ogawa-Ohnishi, Yoshikatsu Matsubayashi (Grad. Sch. Sci., Nagoya University)</p> |
| 16:15 | <p>S06-7 Signaling molecules that move long-distance in plants<br/> <u>Michitaka Notaguchi</u><sup>1,2</sup> (<sup>1</sup>Grad. Sch. Sci, Kyoto Univ., <sup>2</sup>Biosci. Biotech. Cent, Nagoya Univ.)</p>   |
| 16:35 | General discussion & Closing remarks  |

## Plant and Algal Lipids: How they cope with environment by modifying lipids?

**Date** Mon., March 18, 9:00–12:00

**Venue** Room Y

**Organizers:** Mie Shimojima (Tokyo Inst. Tech.) / Rebecca Roston (Nebraska Univ.) / Yonghua Li-Beisson (Aix Marseille Univ, CEA, CNRS) / Koichiro Awai (Shizuoka Univ.)

Most of photosynthetic organisms can not move out or change their habitats, and they have ability to cope with multitude of environmental stresses. Lipids are one of the frontlines of adaptations to manage such stresses, but the underlying molecular mechanisms have not been explored yet. In this symposium, recent advance in physiological roles of membrane and neutral lipids on adaptation to environmental stresses and their regulations mechanisms will be discussed.

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**Chairperson: Mie Shimojima**


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9:00     Opening remarks  
Miki Matoba (Oxford Univ. Press), Mie Shimojima

**Chairperson: Rebecca L. Roston**


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9:05     S07-1    Plastid lipid biosynthesis facilitates light-responsive gene expression and chlorophyll biosynthesis during chloroplast biogenesis  
Sho Fujii (Fac. Agric. Life Sci., Hirosaki Univ.)

9:25     S07-2    LYSOPHOSPHATIDIC ACID ACYLTRANSFERASES involved in membrane lipid remodeling during nutrient starvation response in Arabidopsis  
Van C. Nguyen<sup>1</sup>, Artik Elisa Angkawijaya<sup>1</sup>, Yuki Nakamura<sup>1,2</sup> (<sup>1</sup>RIKEN-CSRS, <sup>2</sup>Dep. of Biological Sci., Grad. Sch. of Sci., The Univ. of Tokyo)

9:45     S07-3    Modification of membrane lipids in *Marchantia polymorpha* in response to abiotic stress  
Mie Shimojima (Sch. Life Sci. and Tech., Tokyo Tech.)

10:05    S07-4    Remodeling of membrane lipid composition under phosphate starvation in Euglena  
Idris Maliki<sup>1</sup>, Toshiki Ishikawa<sup>2</sup>, Koichiro Awai<sup>1,3,4</sup> (<sup>1</sup>Grad. Sch. Integrated Sci. Tech., Shizuoka Univ., <sup>2</sup>Grad. Sch. Sci. Engineer., Saitama Univ., <sup>3</sup>Fac. Sci., Shizuoka Univ., <sup>4</sup>Res. Inst. Electronics, Shizuoka Univ.)

**Chairperson: Koichiro Awai**


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10:25    S07-5    All Members of the Arabidopsis DGAT and PDAT Acyltransferase Families Operate During High and Low Temperatures  
Rebecca Roston<sup>1</sup>, Zachery D. Shomo<sup>1</sup>, Samira Mahboub<sup>1</sup>, Hathaichanok Vanviratikul<sup>2</sup>, Mason McCormick<sup>1</sup>, Tatpong Tulyananda<sup>3</sup>, Jaruswan Warakanont<sup>2</sup> (<sup>1</sup>Dep. Biochem., Univ. of Nebraska-Lincoln, USA, <sup>2</sup>Dep. Bot., Kasetsart Univ., Thailand, <sup>3</sup>Bioinnov, and Bio-Based Prod. Intel. Mahidol Univ. Thailand)

10:45    S07-6    A regulatory mechanism of lipid droplet formation in Arabidopsis leaves  
Takashi L. Shimada<sup>1,2,3</sup> (<sup>1</sup>Grad. Sch. Hort., Chiba Univ., <sup>2</sup>Plant Mol. Sci. Cent., Chiba Univ., <sup>3</sup>Res. Cent. Space Agri. Hort., Chiba Univ.)

11:05    S07-7    Unraveling stress response and lipid remodeling mechanisms in microalgae for adaptation insight  
Yasuyo Yamaoka (Division of Biotechnology, The Catholic University of Korea, Korea)

11:25    S07-8    Exploring algal lipid metabolism for a sustainable bioeconomy  
Yonghua Li-Beisson (CEA Cadarache)

**Chairperson: Yonghua Li-Beisson**


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11:45    General discussion and closing remarks

## Survival strategies and its molecular basis of plants through switching life histories

**Date** Mon., March 18, 9:00–12:00

**Venue** Room Z

**Organizers:** Eriko Sasaki (Kyushu University) / Mie N. Honjo (Kyoto University)

On Earth, plants have evolved with remarkable diversity, adapting to challenging environments by switching life histories, such as reproductive systems between sexual and clonal, employing parasitic and carnivorous strategies, and varying in longevity. However, the evolutionary processes and molecular mechanisms behind these traits remain unknown. In this symposium, we will discuss the survival strategies of plants, from the genome and molecular aspects to ecology.

Chairperson: Mie N. Honjo

9:00 : Opening

Chairperson: Eriko Sasaki

9:05 : S08-1 Switching life histories in amphibious plants: Survival strategies in riparian environments  
Seisuke Kimura<sup>1,2</sup>, Shuka Ikematsu<sup>1,2</sup>, Tomoaki Sakamoto<sup>1,2</sup> (<sup>1</sup>Faculty of Life Sciences, Kyoto Sangyo University, <sup>2</sup>Center for Plant Sciences, Kyoto Sangyo University)

9:30 : S08-2 Exploring the evolutionary factors leading to morphological diversification in the unique aquatic plants  
Natsu Katayama (Grad. Sch. Sci., Univ. Tokyo)

9:55 : S08-3 Seasonal dynamics of virus-host interaction maintain long-term viral infection in the perennial *Arabidopsis halleri*  
Mie N. Honjo, Hiroshi Kudoh (Ctr. Ecol. Res., Kyoto Univ.)

10:20 : Break

Chairperson: Mie N. Honjo

10:30 : S08-4 Exploring diverse life history strategies envisaged from wild *Oryza* genetic resources  
Yutaka Sato, Takanori Yoshikawa (National Institute of Genetics)

10:55 : S08-5 How do epigenetic regulations contribute to environmental adaptation under genetic control?  
Eriko Sasaki (Dept. Biol., Fac. Sci., Kyushu Univ.)

11:20 : S08-6 Inheritance and stability of DNA methylation in *Arabidopsis thaliana*  
Dusan Denic (University of Zurich)

Chairperson: Eriko Sasaki

11:45 : Closing



## Bio-metal Strategies of Living Organisms

**Date** Tue., March 19, 9:00–11:50

**Venue** Room Y

**Co-sponsored by Integrated Bio-metal Science: Research to Explore Dynamics of Metals in Cellular System. Scientific Research on Innovative Areas**

**Organizers:** Shin-ichiro Inoue (Grad. Sch. of Sci., Nagoya Univ.) / Sho Nishida (Fac., Agric., Saga Univ.)

All organisms, including bacteria, animals, and plants, live in different environments and have different strategies for acquiring and utilizing “biometals”. As plant researchers, we may not learn much about the diverse strategies. At this symposium, the latest research on biometal science, including studies on plants, bacteria, and animals, will be presented and discussed.

9:00      Opening remarks  
            Shin-ichiro Inoue

Chairperson: Shin-ichiro Inoue

9:05      S09-1    Adaptive evolution of metal transporters in hyperaccumulator plants  
            Sho Nishida<sup>1,2</sup> (<sup>1</sup>Faculty of Agriculture, Saga University, <sup>2</sup>United Graduate School of Agricultural Sciences, Kagoshima University)

9:25      S09-2    Analysis of iron accumulation and deposition mechanisms in chitons  
            Michiko Nemoto (Grad. Sch. Environ. Life Sci., Okayama Univ.)

9:50      S09-3    Understanding phosphate transport and response mechanisms from tracer imaging  
            Satomi Kanno (IAR., Nagoya univ.)

Chairperson: Sho Nishida

10:10     S09-4    Discovery of stomatal opening by magnesium transport  
            Shin-ichiro Inoue (Grad. Sch. Sci., Nagoya Univ.)

10:30     S09-5    Differences of the iron acquisition mechanisms of plants and animals at the molecular level  
            Hitomi Sawai (Grad. Sch. Eng., Nagasaki Univ.)

10:55     S09-6    Boron transport and sensing by a borate transporter AtBOR1  
            Junpei Takano<sup>1</sup>, Keita Muro<sup>1</sup>, Mayuki Tanaka<sup>1</sup>, Akira Yoshinari<sup>2</sup> (<sup>1</sup>Grad. Sch. Agr. Osaka Metr. Univ., <sup>2</sup>ITbM Nagoya Univ.)

11:15     S09-7    Copper as the keystone of Cu,Zn-superoxide dismutase in health and cellular defense  
            Yoshiaki Furukawa (Dept. Chem., Keio Univ.)

11:45     Closing remarks  
            Sho Nishida

## Multilayered Regulation of Plastid and Mitochondrial genomes and gene expression

**Date** Tue., March 19, 13:30–16:30

**Venue** Room Y

**Co-sponsored by JSPS core-to-core program “Formation of an international center of excellence for plant organelle research”**

**Organizers:** Shin-ichi Arimura (Univ of Tokyo) / Mizuki Takenaka (Kyoto Univ) / Tomohiko Kazama (Kyushu Univ)

Mitochondrial and plastid genomes encode genes for energy production, CO<sub>2</sub> metabolisms, and cytoplasmic male sterility. This symposium highlight the recent development of tools for understanding and applying organellar genomes, and the recent uncovered regulation systems of their genes' expression.

Chairperson: Mizuki Takenaka

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| 13:30 | Opening remarks<br>Shin-ichi Arimura  |
| 13:35 | S10-1 Targeted gene editing of chloroplast and mitochondrial genomes<br><u>Shin-ichi Arimura</u> , Issei Nakazato, Chang Zhou (Grad Sch. Agr & Life Scie, Univ of Tokyo)  |
| 13:50 | S10-2 Novel ways of controlling organellar gene expression<br><u>Ian Small</u> , Farley Kwok van der Giezen, Michael Dennis, Amy Viljoen, Anuradha Pullakhandam, Charles Bond (ARC Centre of Excellence in Plants for Space and/or School of Molecular Sciences, Univ of Western Australia) |
| 14:20 | S10-3 Modulating Mitochondrial Gene Expression Using RF Proteins<br><u>Catherine Colas des Francs-Small</u> , Lilian Vincis Pereira Sanglard, Fei Yang, Ian Small (ARC Centre of Excellence in Plant Energy Biology, The University of Western Australia)                                   |
| 14:50 | Pause   |

Chairperson: Shin-ichi Arimura

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| 14:55 | S10-4 Plant mitochondria RNA metabolism as a key regulatory step in the biogenesis of the OXPHOS system<br><u>Oren Osterseizer-Biran</u> (Institute of Life Sciences, The Hebrew University of Jerusalem) |
| 15:25 | S10-5 Targeted mitochondrial gene editing to reveal cytoplasmic male sterility-causative genes<br><u>Tomohiko Kazama</u> (Grad. Sch. Bioresour. Bioenvironment. Sci., Kyushu University)                  |

Chairperson: Tomohiko Kazama

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| 15:45 | S10-6 Uncovering the link between RNA editing and polyadenylation, two mysterious modifications of plant mitochondrial mRNA<br><u>Akihito Mamiya</u> <sup>1,3</sup> , Kayoko Yamamoto <sup>1</sup> , Takehito Kobayashi <sup>2</sup> , Yusuke Yagi <sup>2</sup> , Takahiro Nakamura <sup>2</sup> , Hidehiro Fukaki <sup>3</sup> , June-Sik Kim <sup>4,5</sup> , Issei Nakazato <sup>6</sup> , Shin-ichi Arimura <sup>6</sup> , Munetaka Sugiyama <sup>1</sup> , Takashi Hirayama <sup>5</sup> ( <sup>1</sup> Department of Biological Sciences, Graduate School of Science, The University of Tokyo, <sup>2</sup> Department of Bioscience and Biotechnology, Faculty of Agriculture, Kyushu University, <sup>3</sup> Department of Biology, Graduate School of Science, Kobe University, <sup>4</sup> Center for sustainable resource science, RIKEN, <sup>5</sup> Institute of Plant Science and Resources, Okayama University, <sup>6</sup> Graduate School of Agricultural and Life Sciences, The University of Tokyo) |
| 16:05 | S10-7 Molecular bases of C-to-U RNA editosome activation in plant organelles<br><u>Mizuki Takenaka</u> , Frink Brody, Tenghua Wang (Grad. Sch. Sci., Kyoto Univ.)  |
| 16:25 | Closing remarks<br>Mizuki Takenaka   |