

# Japanese Society of Plant Microbe Interactions (JSPMI)

## The 33rd annual meeting

Faculty of Agriculture and Marine Science, Kochi University

August 28-30, 2024

### Schedule

<b>Wednesday, August 28</b>	
12:00~	Registration
12:50~13:00	Opening Ceremony
13:00~14:15	Oral Presentation (O1~O5)
14:15~14:30	Break
14:30~15:30	Oral Presentation (O6~O9)
15:30~15:45	Break
15:45~16:45	General Discussion 1 (O1~O9)
16:45~17:00	Break
17:00~17:45	Guest Lecture (Dr. Gary Stacey)
<b>Thursday, August 29</b>	
9:00~10:20	Short Presentation
10:30~11:30	Poster Presentation (odd numbers)
11:30~12:30	Poster Presentation (even numbers)
12:35~13:40	Special Session for Students and Early Career Researchers / Committee Meeting
13:50~14:50	General Discussion 2 (P1 – P24)
14:50~15:05	Break
15:05~15:55	General Discussion 3 (P25~P42)
15:55~16:10	Break
16:10~16:40	NBRP Lecture (Dr. Takuya Suzaki)
16:40~17:25	Special Lecture (Dr. Yuki Morono)
18:30~20:30	Social Gathering
<b>Friday, August 30</b>	
9:00~10:30	Oral Presentation (O10~O15)
10:30~10:45	Break
10:45~11:25	General Discussion 4 (O10~O15)
11:25~11:50	JSPMI 33rd General Meeting & Closing Ceremony

## Daily Schedule and Sessions of 33rd JSPMI Annual Meeting

### Wednesday, August 28

- 0:00 p.m. – Registration
- 0:50 – 1:00 p.m. Opening Ceremony
- 1:00 – 2:15 p.m. Oral Presentation (5 titles)

O1 Control of infection thread distribution through periodic cytokinin response in *Lotus japonicus* nodule symbiosis

\*Takashi Soyano<sup>1,2</sup>, Masayoshi Kawaguchi<sup>1,2</sup>

<sup>1</sup>NIBB, <sup>2</sup>SOKENDAI

O2 The role of callose synthase functioning in nodule formation

\*Akira Akamatsu<sup>1,2</sup>, Nagisa Miyamoto<sup>1</sup>, Makoto Hayashi<sup>2</sup>, Naoya Takeda<sup>1</sup>

<sup>1</sup>Grad. Sch. of Bio. and Env. Sci. Kwansei gakuin Univ., <sup>2</sup>RIKEN CSRS

O3 Symbiotic control by peptidyl-prolyl *cis/trans* isomerase Cyclophilin A phylogenetically associated with intracellular infection system

\*Takashi Goto<sup>1,2</sup>, Yasuyuki Kawaharada<sup>3</sup>, Masayuki Sugawara<sup>4</sup>, Kiwamu Minamisawa<sup>5</sup>, Masayoshi Kawaguchi<sup>2,6</sup>

<sup>1</sup>Aarhus Univ., <sup>2</sup>NIBB, <sup>3</sup>Iwate Univ., <sup>4</sup>Obihiro Univ. of Agric. and Vet. Med., <sup>5</sup>Tohoku Univ., <sup>6</sup>SOKENDAI

O4 Exploring of *Lotus japonicus* genes involved in suppression of root nodule symbiosis triggered by rhizobial effectors

\*Shun Hashimoto<sup>1</sup>, Masaru Bamba<sup>1</sup>, Shohei Kusakabe<sup>2</sup>, Yusdar Mustamin<sup>1</sup>, Mizuki Takasawa<sup>1</sup>, Cui Ying<sup>1</sup>, Pongdet Piromyou<sup>3</sup>, Pongpan Songwattana<sup>3</sup>, Panlada Tittabutr<sup>3</sup>, Nantakorn Boonkerd<sup>3</sup>, Neung Teaumroong<sup>3</sup>, Takakazu Kaneko<sup>4</sup>, Shin Okazaki<sup>5</sup>, Toshiki Uchiumi<sup>6</sup>, Hisayuki Mitsui<sup>1</sup>, Shusei Sato<sup>1</sup>

<sup>1</sup>Grad. Sch. of Life Sci. Tohoku Univ., <sup>2</sup>Fukushima Agric. Tech. Centre, <sup>3</sup>Suranaree Univ. of Tech., <sup>4</sup>Fac. of Agric. Kyoto Sangyo Univ., <sup>5</sup>Fac. of Agric. Tokyo Univ. of Agric. and Tech., <sup>6</sup>Grad. Sch. of Sci. and Eng. Kagoshima Univ.

O5 Establishment of the root-associated bacterial culture collection of *Lotus japonicus* and its application in analyzing host genotype-dependent interaction

\*Yusdar Mustamin<sup>1</sup>, Masaru Bamba<sup>1</sup>, Johan B. Quilbe<sup>2</sup>, Turgut Yigit Akyol<sup>2</sup>, Stig U. Andersen<sup>2</sup>, Shusei Sato<sup>1</sup>

<sup>1</sup>Graduate School of Life Sciences, Tohoku University, <sup>2</sup>Dept. of Molecular Biology and Genetics, Aarhus University

2:15 – 2:30 p.m. Break

2:30 – 3:30 p.m. Oral Presentation (4 titles)

\* Boxed numbers indicate presentations by student.

**O6** The expression of iron acquisition-related genes is regulated by Fur1 in the presence of Fe<sup>2+</sup> and Fur2 in the presence of Fe<sup>3+</sup> in *Ralstonia pseudosolanacearum* strain OE1-1

\*Sora Tateda, Tatsuya Ueyama, Karin Sato, Akinori Kiba, Kouhei Ohnishi, Yasufumi Hikichi, Masayuki Tsuzuki

Fac. of Agric. and Mar. Sci., Kochi Univ.

**O7** Intracellular accumulation of EPS biosynthetic intermediate(s) is essential to drive the biosynthesis

of QS signal in *Ralstonia*

\*Hiroto Nakajima, Kenji Kai

Graduate School of Agriculture Osaka Metropolitan University

**O8** Comparative analyses of systemically induced responses in Arabidopsis by beneficial fungus and chitin

\*Ayae Sakai<sup>1</sup>, Hisako Yamagata<sup>1</sup>, Keigo Naito<sup>1</sup>, Takaya Tominaga<sup>2</sup>, Shinsuke Ifuku<sup>3, 4</sup>, Hironori Kaminaka<sup>5</sup>

<sup>1</sup>Dept. Agr. Sci., Grad. Sch. Sust. Sci., Tottori Univ., <sup>2</sup>United Grad. Sch. Agr., Tottori Univ., <sup>3</sup>Fac. Eng., Tottori Univ., <sup>4</sup>RISH, Kyoto Univ., <sup>5</sup>Fac. Agr., Tottori Univ.

**O9** Analysis of molecular mechanisms underlying plant-bleaching induced by *Methylobacterium indicum*

Masataka Izumi<sup>1</sup>, Dang Phuong<sup>1</sup>, Khoa Lai<sup>1</sup>, Tung Le<sup>1</sup>, Sho Miyazaki<sup>2</sup>, Hiroshi Kawaide<sup>1</sup>, Mihoko Mori<sup>1</sup>, Nozomu Sakurai<sup>3, 4</sup>, \*Shin Okazaki<sup>1</sup>

<sup>1</sup>Untd. Grad. Sch. of Agric. Sci. Tokyo Univ. of Agric. and Tech., <sup>2</sup>Fac. of Sci. and Tech. Keio Univ., <sup>3</sup>Natl. Inst. of Genet., <sup>4</sup>Kazusa DNA Res. Inst.

3:30 – 3:45 p.m. Break

3:45 – 4:45 p.m. General Discussion 1 (O1 – O9)

4:45 – 5:00 p.m. Break

5:00 – 5:45 p.m. Special Lecture 1  
“Biochemistry of early legume nodulation”  
Dr. Gary Stacey (University of Missouri)

#### Thursday, August 29

9:00 – 10:20 a.m. Short Presentation (42 poster titles)

10:30 – 11:30 a.m. Poster Viewing with Authors (*odd numbers*)

11:30 – 0:30 p.m. Poster Viewing with Authors (*even numbers*)

Lunch/Special Session for Students and Early Career Researchers/Committee Meeting

1:50 – 2:50 p.m. General Discussion 2 (P1 – P24)

2:50 – 3:05 p.m. Break

3:05 – 3:55 p.m. General Discussion 3 (P25 – P42)

3:55 – 4:10 p.m. Break

4:10 – 4:40 p.m. NBRP Lecture  
“A mechanism of iron supply to nodules according to internal nitrogen status in plants”  
Dr. Takuya Suzaki (University of Tsukuba)

4:40 – 5:25 p.m. Special Lecture 2  
“Exploration into deep seafloor biosphere: is it a microbial paradise or an eternal prison?”

Dr. Yuki Morono (JAMSTEC)

5:45 p.m. Depart of bus

6:30 p.m. – Social Gathering

### Friday, August 30

9:00 – 10:30 a.m. Oral Presentation (6 titles)

O10 Promotion of root growth by Lipopolysaccharide (LPS) from purple non-sulfur bacteria (PNSB)

\*Hitoshi Miyasaka<sup>1</sup>, Ranko Iwai<sup>1</sup>, Shunta Uchida<sup>1</sup>, Sayaka Yamaguchi<sup>1</sup>, Shuhei Hayashi<sup>1</sup>, Shinjiro Yamamoto<sup>1</sup>, Aoi Koga<sup>2</sup>, Midori Goto<sup>2</sup>, Naoki Yamada<sup>3</sup>, Maki Taka-aki<sup>3</sup>

<sup>1</sup>Sojo University, <sup>2</sup>Ciamo Co., Ltd., <sup>3</sup>Matsumoto Institute of Microorganisms Co., Ltd.

O11 Anti-SARS-CoV-2 activity of the *Catharanthus roseus* endo-phytic fungal products and derivatives; Potential for type II diabetes drugs revealed by studies of inhibitory activity of  $\alpha$ -glucosidase as a target enzyme

\*Shoji Maehara<sup>1</sup>, Moeka Kumamoto<sup>1</sup>, Shogo Nakajima<sup>2</sup>, Yuzou Hieda<sup>3</sup>, Sachi Shibata<sup>4</sup>, Koichi Watashi<sup>2</sup>, Toshiyuki Hata<sup>1</sup>

<sup>1</sup>Grad. Sch. of Pharm. Sci. Fukuyama Univ., <sup>2</sup>Dep. Virology II, NIID., <sup>3</sup>Com. Res. Cent. Fukuyama Univ.,

<sup>4</sup>Grad. Sch. of Health and Wel. Sci. Okayama pref. Univ.

O12 Establishment of a soybean-rhizobium symbiosis system in which N<sub>2</sub>O-reduced rhizobia dominantly infect.

\*Hanna Nishida<sup>1</sup>, Manabu Itakura<sup>2</sup>, Khin Thuzar Win<sup>1</sup>, Feng Li<sup>3</sup>, Kaori Kakizaki<sup>2</sup>, Atsuo Suzuki<sup>2</sup>, Satoshi Ohkubo<sup>2</sup>, Masayuki Sugawara<sup>4</sup>, Koji Takahashi<sup>3</sup>, Sachiko Masuda<sup>5</sup>, Arisa Shibata<sup>5</sup>, Ken Shirasu<sup>5</sup>, Yukiko Fujisawa<sup>1</sup>, Yoshikazu Shimoda<sup>1</sup>, Kiwamu Minamisawa<sup>2</sup>, Haruko Imaizumi-Anraku<sup>1</sup>

<sup>1</sup>NARO NIAS, <sup>2</sup>Grad. Sch. of Life Sci. Tohoku Univ., <sup>3</sup>NARO NICS, <sup>4</sup>Life and Food Sci. Obihiro Univ., <sup>5</sup>RIKEN CSRS

O13 The role of plant trehalase in arbuscular mycorrhizal symbiosis

\*Takaya Tominaga<sup>1</sup>, Hironori Kaminaka<sup>2</sup>, Satoko Yoshida<sup>1</sup>

<sup>1</sup>Grad. Sch. Sci. and Tech., NAIST, <sup>2</sup>Fac. Agr., Tottori Univ.

O14 Plant-microbe metabolic networks underlie the assembly of root microbiota

\*Tomohisa Shimasaki<sup>1,2</sup>, Sachiko Masuda<sup>3</sup>, Yui Nose<sup>2</sup>, Arisa Shibata<sup>3</sup>, Tsubasa Shoji<sup>3,4</sup>, Maiko Furubayashi<sup>5</sup>, Yoshitomo Kikuchi<sup>5,6</sup>, Ken Shirasu<sup>3</sup>, Kazufumi Yazaki<sup>7</sup>, Yasunori Ichihashi<sup>2</sup>, Akifumi Sugiyama<sup>7</sup>, Ryohei Thomas Nakano<sup>1</sup>

<sup>1</sup>Fac. of Sci. Hokkaido Univ., <sup>2</sup>RIKEN BRC, <sup>3</sup>RIKEN CSRS, <sup>4</sup>INM, Univ. Toyama, <sup>5</sup>Bioproduction Research Institute, AIST, <sup>6</sup>Grad. Sch. of Agric. Hokkaido Univ., <sup>7</sup>RISH, Kyoto Univ.

O15 Farmyard manure application affects the composition of diazotrophic bacterial communities in rice rhizosphere soil in Madagascar

\*Takanori Okamoto<sup>1,2</sup>, Hidetoshi Asai<sup>1</sup>, Yasuhiro Tsujimoto<sup>1</sup>, Toshiyuki Takai<sup>1</sup>, Arisa Nishihara<sup>3</sup>, Moriya Ohkuma<sup>3</sup>, Tantely Vahatra Rakotonindrina<sup>4</sup>, Hobimiarantsoa Rakotonindrina<sup>4</sup>, Andry Andriamananjara<sup>4</sup>, Motohiko Kondo<sup>2</sup>, Papa Saliou Sarr<sup>1</sup>

<sup>1</sup>JIRCAS, <sup>2</sup>Nagoya Univ., <sup>3</sup>RIKEN BRC, <sup>4</sup>LRI, Université d'Antananarivo

10:30 – 10:45 a.m. Break

10:45 – 11:25 a.m. General Discussion 4 (O10 – O15)

11:25 – 11:50 a.m. JSPMI 33<sup>rd</sup> General Meeting & Closing Ceremony

## Scientific Posters of JSPMI 33rd Annual Meeting

### Wednesday, August 28

0:00 p.m. – Poster Set-Up

### Thursday, August 29

9:00 – 10:20 a.m. Short Presentation (all posters)

10:30 – 11:30 a.m. Poster Viewing with Authors (*odd numbers*)

11:30 – 0:30 p.m. Poster Viewing with Authors (*even numbers*)

1:50 – 2:45 p.m. General Discussion 2 (P1 – P21)

3:00 – 3:55 p.m. General Discussion 3 (P22 – P42)

### Friday, August 30

9:30 – 0:00 p.m. Poster Take-Down

【Posters, 42 titles】

\* Boxed poster numbers indicate presentations by student.

**P1** Barley powdery mildew effector APEC1 interacts with host glycolate oxidase homologs.  
\*Riki Takahashi<sup>1</sup>, Hina Koide<sup>2</sup>, Takahiro Katayama<sup>2</sup>, Chie Inoue<sup>2</sup>, Tomohiro Kouguchi<sup>2</sup>, Kappei Kobayashi<sup>2</sup>, Naoto Yamaoka<sup>3</sup>, Takumi Nishiuchi<sup>4</sup>, Hirofumi Nakagami<sup>4</sup>, Takashi Yaeno<sup>2</sup>  
<sup>1</sup>Fac. of Agric. Ehime Univ., <sup>2</sup>Grad. Sch. of Agric. Ehime Univ., <sup>3</sup>ReCEMHD Kanazawa Univ., <sup>4</sup>Max Planck Institute

**P2** Manipulation of *Arabidopsis thaliana* root growth and immunity by root commensals and its underlying molecular mechanisms  
Zoe Prockl<sup>1,2</sup>, Jana Hucklenbroich<sup>3</sup>, \*Ryohei Thomas Nakano<sup>1,3</sup>  
<sup>1</sup>Fac. of Sci., Hokkaido Univ., <sup>2</sup>Univ. Cologne, <sup>3</sup>MPI for Plant Breeding Research

**P3** Comparative analysis of systemically induced disease resistance in *Arabidopsis*  
\*Naoko Enomoto<sup>1</sup>, Mayumi Egusa<sup>2</sup>, Hironori Kaminaka<sup>2</sup>  
<sup>1</sup>Grad. Sch. Agr., Tottori Univ., <sup>2</sup>Fac. Agr., Tottori Univ.

**P4** Analysis of interaction between tomato and *Cmm* by Dual RNA-Seq  
\*Naoki Yokotani<sup>1</sup>, Yoshinori Hasegawa<sup>1</sup>, Masaru Sato<sup>1</sup>, Yusuke Kouzai<sup>2</sup>, Hideki Hirakawa<sup>1</sup>, Sachiko Isobe<sup>1</sup>  
<sup>1</sup>Kazusa DNA Res., <sup>2</sup>RIKEN

**P5** Effect of rhizobial inoculation and observation of infection type of rhizobia J8 on *Glycyrrhiza* in the early symbiotic stage.  
\*Shion Yamamoto<sup>1</sup>, Aya Shimomura<sup>2</sup>, Mareshige Kojoma<sup>3</sup>, Akihiro Suzuki<sup>1,2</sup>  
<sup>1</sup>United Grad. Sch. of Agric. Sci., Kagoshima Univ., <sup>2</sup>Fac. of Agric. Saga Univ., <sup>3</sup>Fac. of Pharmacy. Health. Sci. Univ. of Hokkaido

**P6** Isolation of isoflavone-degrading bacteria from soybean rhizosphere and comprehensive analysis of their degradation specificity  
\*Tomoaki Sato<sup>1</sup>, Kyoko Takamatsu<sup>1</sup>, Hinako Matsuda<sup>1</sup>, Noritaka Aoki<sup>1</sup>, Akinori Ando<sup>2</sup>, Shigenobu Kishino<sup>2</sup>, Jun Ogawa<sup>2</sup>, Sachiko Masuda<sup>3</sup>, Arisa Shibata<sup>3</sup>, Ken Shirasu<sup>3</sup>, Tomohisa Shimasaki<sup>4</sup>, Kazufumi

Yazaki<sup>1</sup>, Akifumi Sugiyama<sup>1</sup>

<sup>1</sup>RISH, Kyoto Univ., <sup>2</sup>Grad. Sch. Agric., Kyoto Univ., <sup>3</sup>RIKEN CSRS, <sup>4</sup>Fac. Sci. Hokkaido Univ.

**P7** Comparison of two aerobic methane-oxidizing bacteria in induction patterns of nitrogen fixation gene expression

\*Yuka Oizumi<sup>1</sup>, Argen Adem Abdela<sup>1</sup>, Fumika Oe<sup>2</sup>, Rina Shinjo<sup>2</sup>, Takeshi Watanabe<sup>2</sup>, Susumu Asakawa<sup>2</sup>, Kiwamu Minamisawa<sup>1</sup>, Hisayuki Mitsui<sup>1</sup>, Shusei Sato<sup>1</sup>

<sup>1</sup> Grad. Sch. of Life Sci. Tohoku Univ., <sup>2</sup> Grad. Sch. of Bioagricultural Sciences. Nagoya Univ.

**P8** The effect of soybean *F3'H* gene function on the rhizosphere bacterial community

\*Koshiro Matsumura<sup>1</sup>, Hinako Matsuda<sup>1</sup>, Kyoko Takamatsu<sup>1</sup>, Shinich Yamazaki<sup>2,3</sup>, Hisabumi Takase<sup>4</sup>, Yoshiharu Fujii<sup>5</sup>, Yuichi Aoki<sup>2</sup>, Nozomu Sakurai<sup>6,7</sup>, Kazufumi Yazaki<sup>1</sup>, Akifumi Sugiyama<sup>1</sup>

<sup>1</sup>RISH, Kyoto Univ., <sup>2</sup>ToMMo, Tohoku Univ., <sup>3</sup>RIKEN BRC, <sup>4</sup>Fac. of Bioenviron. Sci., KUAS, <sup>5</sup>Fac. of Agric. Tokyo Univ. of Agric. and Tech., <sup>6</sup>NIG, <sup>7</sup>KAZUSA DNA Res. Inst.

**P9** The cysteinyl-tRNA synthetase of the *Mesorhizobium loti* functions in root nodule symbiosis.

\*Mitsutaka Fukudome<sup>1</sup>, Asuka Ikuta<sup>2</sup>, Mika Nomura<sup>2</sup>, Toshiki Uchiumi<sup>1</sup>

<sup>1</sup>Grad. Sch. of Sci. and Eng. Kagoshima Univ., <sup>2</sup> Grad. Sch. of Agri. Kagawa Univ.

**P10** Effects of secondary metabolites from the exotic plant, coral ardisia, on soil microbial communities

\*Naoto Nakamura, Akifumi Sugiyama

RISH

**P11** Effects of furanocoumarins on rhizosphere microbiome

\*Haruka Morishita, Naoto Nakamura, Koshiro Matsumura, Tomoaki Sato, Ryosuke Munakata, Akifumi Sugiyama

RISH Kyoto Univ.

**P12** Yield of soybean grown under abnormally dry conditions in Japan and effect of rice husk smoked charcoal fertilization and super-nodulation mutants on yield.

\*Norikuni Ohtake<sup>1</sup>, Mana Ishikawa<sup>1</sup>, Tsubasa Sato<sup>2</sup>, Takuji Miyamoto<sup>1</sup>, Kuni Sueyoshi<sup>1</sup>

<sup>1</sup>Grad. Sch. of Sci. Teq. Niigata Univ., <sup>2</sup>Niigata Univ. FC.

**P13** Growth of soybeans and symbiotic nodules phenotype changes in difference amount of nitrogen applied.

\*Mana Ishikawa, Steven Orito, Takuji Miyamoto, Kuni Sueyoshi, Norikuni Ohtake

Grad. Sch. of Sci and Tec. Niigata Univ.

**P14** Stomatal manipulation and plant growth promotion by the leaf symbiotic bacterium

\*Rikako Hirata<sup>1</sup>, Yuniar Devi Utami<sup>2</sup>, Kei Hiruma<sup>2</sup>, Akira Mine<sup>1</sup>

<sup>1</sup>Grad. Sch. Agr., Kyoto Univ., <sup>2</sup>Grad. Sch. Arts and Sci., Tokyo Univ.

**P15** Effects of AM fungal symbiosis on soil stress tolerance of garland chrysanthemum

\*Riki Shimada<sup>1</sup>, Kazuma Kumaoka<sup>2</sup>, Akiyoshi Tominaga<sup>1</sup>

<sup>1</sup>the United Grad. Sch. of Agric. Sci. Gifu Univ., <sup>2</sup>Iwataminami High School

**P16** Function of purple acid phosphatase in phosphorus transfer of arbuscular mycorrhizal symbiosis

Mika Ohashi, Nguyen Thi Cuc, \*Katsuharu Saito

Fac. of Agric. Shinshu Univ.

**P17** Analysis of the mechanism of rhizobial symbiosis in *Wisteria* species

\*Satoshi Fukao<sup>1</sup>, Aya Shimomura<sup>2</sup>, Akihiro Suzuki<sup>2</sup>, Daisuke Sakai<sup>3</sup>, Maho Okugawa<sup>4</sup>, Akiyoshi Tominaga<sup>1</sup>

<sup>1</sup>Grad. Sch. of Agric. Shizuoka Univ., <sup>2</sup>Fac. of Agric. Saga Univ., <sup>3</sup>Div. Corporate location strategy. Fujieda City., <sup>4</sup>Div. Flower. and Green. Fujieda City

**P18** Plant genotype effects on the community of arbuscular mycorrhizal fungi in *Lotus japonicus*

\*Nakano Yuta<sup>1</sup>, Bamba Masaru<sup>1</sup>, Azuma Yusuke<sup>1</sup>, Sato Shusei<sup>1</sup>

<sup>1</sup> Grad. Sch. of Life Sci. Tohoku Univ.

**P19** Two LysM receptor-like kinases regulate arbuscular mycorrhiza through distinct signalling pathways in *Lotus japonicus*

\*Rin Mamiya, Hayato Fukuda, Misaki Hayata, Keisuke Isoshima, Akira Akamatsu, Naoya Takeda  
Grad. Sch. of Sci. and Tech. Kwansai Gakuin Univ.

**P20** Localization of nitric oxide and expression of leghemoglobin gene in soybean-bradyrhizobia symbiosis

\*Masato Araragi, Yasuyuki Kawaharada

Fac. of Agric. Iwate Univ.

**P21** Response of non-leguminous plants against *Bradyrhizobium* and *Frankia*

\*Toshiki Uchiumi<sup>1</sup>, Yoshikazu Shimoda<sup>2</sup>, Mitsutaka Fukudome<sup>1</sup>, Seitaro Okuhira<sup>1</sup>, Sachiko Isobe<sup>3</sup>, Hideki Hirakawa<sup>4</sup>, Kenta Shirasawa<sup>5</sup>, Takashi Soyano<sup>6</sup>, Masayoshi Kawaguchi<sup>6</sup>, Takuya Suzuki<sup>7</sup>, Akiyoshi Tominaga<sup>8</sup>, Shigeru Hanano<sup>9</sup>, Shusei Sato<sup>9</sup>

<sup>1</sup>Grad Sch. Sci. and Eng. Kagoshima Univ., <sup>2</sup>Inst. of Agrobiol. Sci., NARO, <sup>3</sup>Grad. Sch. of Agri. Life Sci. Univ. of Tokyo, <sup>4</sup>Grad. Sch. of Biores. and Bioenviron. Kyushu Univ., <sup>5</sup>Kazusa DNA Res. Inst., <sup>6</sup>NIBB, <sup>7</sup>Life Environ Sci. Tsukuba Univ., <sup>8</sup>Fac. of Agric. Shizuoka Univ., <sup>9</sup>Grad. Sch. of Life Sci. Tohoku Univ.

**P22** Molecular features of the NIN show the evolutionary basis of nodulation

\*Momona Noda<sup>1</sup>, Shohei Nosaki<sup>1,2</sup>, Hiroki Onoda<sup>3</sup>, Momoyo Ito<sup>1</sup>, Takuya Suzuki<sup>1,2</sup>

<sup>1</sup>Fac. Life. Sci., Univ. Tsukuba, <sup>2</sup>T-PIRC, Univ. Tsukuba, <sup>3</sup>NUSR, Nagoya Univ

**P23** Symbiotic phenotypes of Nod Factor-independent nodulation in soybeans and *Bradyrhizobium elkanii* strain

\*Shogo Fukunaga<sup>1</sup>, Safirah Tasa Nerves Ratu<sup>1</sup>, Shusei Sato<sup>2</sup>, Shin Okazaki<sup>1</sup>

<sup>1</sup> Fac. of Agric. Univ. of Agric. and Tech., <sup>2</sup>Grad. Sch. of Life Sci. Tohoku Univ.

**P24** Development of a system for acquiring nodule size and nodulated position using Soy2DMapper

Syota Teramoto<sup>1</sup>, Kensuke Kawade<sup>2</sup>, Khin Thuzar Win<sup>3</sup>, \*Haruko Imaizumi-Anraku<sup>3</sup>

<sup>1</sup>NARO. NICS, <sup>2</sup>Grad. Sch. of Sci. Eng., <sup>3</sup>NARO. NIAS

**P25** Migration of soil-injected microbial species to plants

\*Tsukasa Ito, Shu Okada, Kota Maeda, Wei Chen, Ghazaleh Eslamloo, Chanchao Chem

Grad. Sch. of Sci Eng. Gunma Univ.

**P26** Mixtures of cell wall-degrading enzymes for the production of protoplasts in arbuscular mycorrhizal fungi

\*Kyosuke Adachi, Katsuharu Saito

Grad. Sch. of Sci. and Tech. Shinshu Univ.

**P27** Gibberellin distribution and changes during arbuscular mycorrhiza in *Lotus japonicus*

\*Shuto Mukai, Shiomi Hosaka, Masahiro Mito, Yuri Asano, Akira Akamatsu, Naoya Takeda

Grad. Sch. of Sci. and Tech. Kwansai Gakuin Univ

**P28** Functional elucidation of strigolactones in the regulation of arbuscular mycorrhizal symbiosis in tomato

\*Yuka Higashi<sup>1</sup>, Hikaru Saito<sup>1</sup>, Hironori Kaminaka<sup>2</sup>

<sup>1</sup>Grad. Sch. Agr., Tottori Univ., <sup>2</sup>Fac. Agr., Tottori Univ.

**P29** Comparative expression analysis of *Lotus japonicus* and *L. burttii* following inoculation with *Rhizobium* sp. Chiba-1

\*Yuhei Chiba<sup>1</sup>, Mao Sasaki<sup>2</sup>, Yasuyuki Kawaharada<sup>1,2,3</sup>

<sup>1</sup>UGAS, Iwate Univ., <sup>2</sup>Grad Sch. of Arts and Sci., Iwate Univ., <sup>3</sup>Fac. of Agric. Iwate Univ.

**P30** De novo assembly of *Lotus krylovii* genome and its nodulation phenotypes

\*Masaru Bamba, Shusei Sato

Grad. Sch. of Life Sci. Tohoku Univ.

**P31** Symbiotic genes involved in *Oxytropis*-rhizobia symbiosis in Japan

\*Ibuki Nishikawa, Kojiro Takanashi

Grad. Sch. Sci. Eng. Shinshu Univ.

**P32** Evaluation of the rate of mutation introduction in TILLING M1 populations of sorghum using next-generation sequencing

\*Karin Yamamoto, Kazuki Nejikane, Kastuharu Saito

Fac. of Agric. Shinshu Univ.

**P33** Spatiotemporal control of host plastid differentiation by barley powdery mildew fungus

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**P34** The role of ferrisiderophore receptors on iron uptake in *Ralstonia pseudosolanacearum* strain OE1-1

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**P35** Analysis of root colonization of tomatine degrading *Sphingobium* sp. isolated from tomato rhizosphere.

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**P36** Microbiota Community Dynamics in *Cardamine leucantha* during Shoot Formation from Rhizome

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**P37** Root microbiota interferes with host immune responses via extracellular molecules

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**P38** The impact of the olive bacterial wilt effector RipAV on endosome function

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**P39** The AcrR-type transcriptional regulator RSp0599 regulates the major exopolysaccharide EPS I production, independently of quorum sensing, in *Ralstonia pseudosolanacearum* strain OE1-1

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**P40** Investigation of the existence of sexual reproduction in arbuscular mycorrhizal fungi

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**P41** Plant-Fungal-Bacterial Interaction in Rhizosphere SynCom

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**P42** Analysis of microbes that promote root nodule symbiosis in rhizosphere synthetic community

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