

# 2007 JSPMI Poster presentation program

**Even numbers, 20 September, Wednesday 9:00 – 11:15**

**Odd numbers, 21 September, Thursday 9:00 – 11:15**

P1 Effect of Temperatures on the Global Expression of *Bradyrhizobium japonicum* USDA 110 in Response to Soybean Seed Extract and Genistein

○Min Wei<sup>1</sup>, Takuji Ohwada<sup>1</sup>, Tadashi Yokoyama<sup>2</sup>, Kiwamu Minamisawa<sup>3</sup>, Hisayuki Mitsui<sup>3</sup>, Manabu Itakura<sup>3</sup>, Takakazu Kaneko<sup>4</sup>, Satoshi Tabata<sup>4</sup>, Kazuhiko Saeki<sup>5</sup>, Hirofumi Oomori<sup>6</sup>, Shigeyuki Tajima<sup>7</sup>, Toshiki Uchiumi<sup>8</sup>, Mikiko Abe<sup>8</sup>

<sup>1</sup>Obihiro Univ of Agriculture and Veterinary Medicine, <sup>2</sup>Tokoyo Univ of Agriculture and Technology, <sup>3</sup>Tohoku Univ, <sup>4</sup>Kazusa DNA Res.Inst, <sup>5</sup>Nara Women`s Univ, <sup>6</sup>Osaka Univ, <sup>7</sup>Kagawa Univ, <sup>8</sup>Kagoshima Univ,

P2 Endophytic diazotrophs in sweet potatoes

○Junko Terakado<sup>1,2</sup>, Yoshinari Ohwaki<sup>1</sup>, Fukuyo Tanaka<sup>1</sup>, Tadakatsu Yoneyama<sup>3</sup>, Shinsuke Fujihara<sup>1</sup>

<sup>1</sup>NARC, <sup>2</sup>JSPS, <sup>3</sup>Univ. Tokyo

P3 Improvement of the chimeric gene reporter for RIVET to detect genes that express during establishment of symbiosis

○Eriko Ishida<sup>1</sup>, Elina Mishima<sup>1,2</sup>, Kazuhiko Saeki<sup>1</sup>

<sup>1</sup>Nara Women's Univ., <sup>2</sup>Osaka Univ.

P4 Isolation of bacterial endophyte in *Lotus japonicus*

Yasuyuki Kawaharada<sup>1</sup>, Manabu Itakura<sup>1</sup>, Takakazu Kaneko<sup>2</sup>, Sima Eda<sup>1</sup>, Hisayuki Mitsui<sup>1</sup>, Satoshi Tabata<sup>2</sup>, ○Kiwamu Minamisawa<sup>1</sup>

<sup>1</sup>Tohoku Univ., <sup>2</sup>Kazusa DNA Res. Inst.

P5 Regulation of symbiosis mediated by bacterial DNA adenine methylation

○Hiroyuki Ichida<sup>1,2</sup>, Tomoki Matsuyama<sup>3</sup>, Tomoko Abe<sup>2</sup> and Takato Koba<sup>1</sup>

<sup>1</sup>Graduate School of Science and Technology, Chiba Univ., <sup>2</sup>Nishina Center and <sup>3</sup>Discovery Res. Inst., RIKEN

P6 Genetic transformation of the nitrogen-fixing bacterium *Frankia*

○Ken-ichi Kucho, Kentaro Kakoi, Masatoshi Yamaura, Toshiki Uchiumi, Mikiko Abe

Department of Chemistry and Science, Faculty of Science, Kagoshima University

P7 Nodule bacteria of *Acacia mangium* after the forest fire in East Kalimantan, Indonesia

○Aiko Setoyama<sup>1</sup>, Iida Atsushi<sup>1</sup>, Titik K. Prana<sup>2</sup>, Eiji Suzuki<sup>3</sup>, Ken-ichi Kucho<sup>4</sup>, Toshiki Uchiumi<sup>4</sup>, Shiro Higashi<sup>4</sup>, Mikiko Abe<sup>4</sup>

<sup>1</sup> Grad. Sc. Sci & Eng., Kagoshima Univ., <sup>2</sup> Res. Center for Biology, LIPI Indonesia, <sup>3</sup> Dept. Earth & Environ. Sci., Kagoshima Univ., <sup>4</sup>Dept. Chem & Biosci., Kagoshima Univ.

P8 RFLP analysis of *Frankia* in the nodules of actinorhizal plants growing under natural conditions

○Yuki Nagashima, Hiroyuki Masuda and Hideo Sasakawa

Grad. Sch. of Natur. Sci. & Tech., Okayama Univ.

P9 Characterization of NO-inducing lipopolysaccharides from *Mesorhizobium loti*

○Hashimoto Masahito<sup>1</sup>, Daishi Honda<sup>1</sup>, Kenji Kajiyama<sup>1</sup>, Yasuo Suda<sup>1</sup>, Maki Nagata<sup>2</sup>, Ken-ichi Kucho<sup>3</sup>, Mikiko Abe<sup>3</sup>, Toshiki Uchiumi<sup>3</sup>

<sup>1</sup> Dept. of Nanostruct. & Adv. Mater., Kagoshima Univ., <sup>2</sup> Grad. Sch. of Sci. & Tech., Kagoshima Univ., <sup>3</sup> Dept. of Chem. & Biosci., Kagoshima Univ.

P10 Screening for the *Frankia* gene specifically induced by root exudate of host plant

○Masatoshi Yamaura<sup>1</sup>, Mikiko Abe<sup>2</sup>, Toshiki Uchiumi<sup>2</sup>, Shiro Higashi<sup>2</sup>, Ken-ichi Kucho<sup>2</sup>

<sup>1</sup>Graduate School of Science and Engineering, Kagoshima University, <sup>2</sup>Faculty of Science, Kagoshima University

P11 Characterization of *Sinorhizobium meliloti* *TolC* and its role in symbiosis

○Yukiko Mori, Shima Eda, Hisayuki Mitsui, Kiwamu Minamisawa

Graduate School of Life Sciences, Tohoku University

P12 Behavior of *Arabidopsis* roots inoculated with isolates from rhizosphere soil

○Hiroshi Akasaka, Jun Wasaki, Yoshimi Tanaka, Susumu Ito

CRIS, Hokkaido Univ.

P13 Heterologous complementation analysis of *Sinorhizobium meliloti* *bacA* mutant with the *bacA* homologue of *Mesorhizobium loti* MAFF303099

○Jumpei Maruya<sup>1,2</sup>, Artur Muszynski<sup>3</sup>, Russell W Carson<sup>3</sup>, Kazuhiko Saeki<sup>1</sup>

<sup>1</sup>Department of Biological Sciences, Faculty of Science, Nara Women's Univ., Nara, Japan

<sup>2</sup>Department of Biological Sciences, Graduate School of Science, Osaka Univ., Osaka, Japan

<sup>3</sup>Complex Carbohydrate Research Center, Univ. of Georgia, Athens, GA, USA

P14 Effects of crushed bamboos mulch on the growth and the nodulation of soybean (*Glycine max* L. Merrill)

○Hisako Watanabe<sup>1</sup>, Takeo Yamakawa<sup>2</sup>

<sup>1</sup>Division of Bioresource and Bioenvironmental Sciences, Kyushu University, <sup>2</sup>Faculty of agriculture, Kyushu University

P15 Exploration of genes for competitive nodulation by signature-tagged mutagenesis in *Bradyrhizobium japonicum*.

○Takashi Okubo, Hisayuki Mitsui, Shima Eda, Kiwamu Minamisawa

Graduate School of Life Sciences, Tohoku University

P16 The role of *ncr* genes in differentiation of bacteroids of non-legume symbiotic system.

○Grigor ZEHIROV<sup>1</sup>, Peter MERGAERT<sup>2</sup>, Hironobu ISHIHARA<sup>3</sup>, Toshiki UCHIUMI<sup>4</sup>, Benoit ALUNNI<sup>2</sup>, Willem Van de VELDE<sup>2</sup>, Adam KONDOROSI<sup>2</sup>, and Eva KONDOROSI<sup>2</sup>  
<sup>1</sup>Institute of Plant Physiology, BAS, <sup>2</sup>Institut de Sciences du Végétal-CNRS, <sup>3</sup>Grad. Sc. Sci. & Eng., Kagoshima Univ., <sup>4</sup>Faculty of Science, Kagoshima University

P17 Comparative study of responses on 3 phylogenetically different *Bradyrhizobium* groups to diverse flavonoids in terms of *nodY-lacZ* expression

○Tadashi Yokoyama

Tokyo University of Agriculture and Technology

P18 Bacteroids in *L. japonicus* nodule expressing *NCR* gene of *M. truncatula*

○Hironobu Ishihara<sup>1</sup>, Grigor Zehirov<sup>2</sup>, Benoit Alunni<sup>3</sup>, Willem Van de Velde<sup>3</sup>, Peter Mergaert<sup>3</sup>, Kenichi Kucho<sup>2</sup>, Mikiko Abe<sup>2</sup>, Toshiki Uchiumi<sup>2</sup>  
<sup>1</sup>Graduate School of Science and Engineering, Kagoshima University, <sup>2</sup>Faculty of Science, Kagoshima University, <sup>3</sup>Institut de Sciences du Végétal-CNRS

P19 Functional difference of two catalases under free-living and symbiotic conditions in *Mesorhizobium loti* MAFF303099

○Hanae Fujimoto<sup>1</sup>, Masaki Hanyu<sup>1,2</sup>, Kouhei Tejima<sup>1</sup>, Kazuhiko Saeki<sup>1</sup>

<sup>1</sup> Nara Women's Univ., <sup>2</sup> Osaka Univ.

P20 Inducement of cluster root formation in white lupin by rhizobacteria.

○Yusuke Unno<sup>1,2</sup>, Takuro Shinano<sup>3</sup>, Mitsuru Osaki<sup>1</sup>

<sup>1</sup>Grad. Agric., Hokkaido Univ., <sup>2</sup>JSPS, <sup>3</sup>CRIS, Hokkaido Univ.

P21 Characterization of mitochondrial proteins from *Lotus japonicus* and soybean nodules.

○Hatthaya Arunothayanan<sup>1</sup>, Mika Nomura<sup>2</sup>, Shigeyuki Tajima<sup>3</sup>,

<sup>1</sup> Faculty of Agriculture, Kagawa university

P22 Mutation of *GmNFR1* gene in non-nodulating soybeans

○ Masaki Hayashi<sup>1</sup>, Michiyo Arai<sup>2</sup>, Yosuke Umehara<sup>1</sup>, Zhengjun Xia<sup>1</sup>, Shoichiro Akao<sup>3</sup>, Kazunori Sakamoto<sup>4</sup>, Hiroshi Kouchi<sup>1</sup> and Kyuya Harada<sup>1</sup>  
<sup>1</sup> Natl. Inst. Agrobiol. Sci., <sup>2</sup> Fukushima Agri. Tech. Centre, <sup>3</sup> Fac. Agri. Univ. Miyazaki, <sup>4</sup> Grad. Sch. Hort. Chiba Univ.

P23 Screening of nitrogen fixation related bacteroid proteins in soybean.

○Ayaka Noda<sup>1</sup>, DAO VAN TAN<sup>1</sup>, Rie Hamaguti<sup>1</sup>, Kensuke Kato<sup>1</sup>, Kiwamu Minamizawa<sup>2</sup>, Manabu Itakura<sup>2</sup>, Mika Nomura<sup>1</sup>, Shigeyuki Tajima<sup>1</sup>

<sup>1</sup> Faculty of Agriculture, Kagawa Univ, <sup>2</sup> Department of Life science, Tohoku Univ

P24 Functional analysis of receptor-like kinase genes of *Lotus japonicus*

○Yoshikazu Shimoda<sup>1</sup>, Yasukazu Nakamura<sup>1</sup>, Satoshi Tabata<sup>1</sup>, Shusei Sato<sup>1</sup>

<sup>1</sup> Kazusa DNA Res. Inst.

P25 Genetic and chemical analysis of Nops, nodulation outer proteins, candidates secreted by

the type III secretion system in *Mesorhizobium loti* MAFF303099

○Saori Okabe<sup>1</sup>, Shin Okazaki<sup>2</sup>, Michael Göttfert<sup>2</sup>, Kazuhiko Saeki<sup>11</sup> Nara Women's Univ., <sup>2</sup> Dresden University of Technology

P26 Expression and functional analysis of LjPDR1

○Akifumi Sugiyama<sup>1</sup>, Nobukazu Shitan<sup>1</sup>, Shusei Sato<sup>2</sup>, Satoshi Tabata<sup>2</sup>, Kazufumi Yazaki<sup>1</sup>

<sup>1</sup>Rish, Kyoto University, <sup>2</sup>Kazusa DNA Res. Inst.

P27 Effect of Difference of Inoculation Method and Inoculum density of *Bradyrhizobium japonicum* USDA110 on Production of Soybean (*Glycine max* L. Merr.)

○Youko Fukushima<sup>1</sup>, Takeo Yamakawa<sup>2</sup>

<sup>1</sup>Division of Bioresource and Bioenvironmental Sciences, Kyushu Univ., <sup>2</sup>Faculty of agriculture, Kyushu Univ.

P28 Analysis of ABCB-type ATP-binding cassette proteins responding to nodule formation in *Lotus japonicus*

○Kojiro Takanashi<sup>1</sup>, Akifumi Sugiyama<sup>1</sup>, Shusei Sato<sup>2</sup>, Satoshi Tabata<sup>2</sup>, Kazufumi Yazaki<sup>1</sup>

<sup>1</sup>Kyoto Univ, <sup>2</sup> Kazusa DNA Res.Inst.

P29 Characteristics of *Bradyrhizobium japonicum* isolated from soybean nodules cultivated in a heavy soil upland field converted from paddy field.

○Takashi Sato, Sayuri Yoshimoto, Yui Nakamura, Yoshihiro Kaneta

Dept. Biol. Sci., Akita Pref. Univ.

P30 Responses of *Lotus japonicus* to symbiotic and pathogenic bacteria

○Maki Nagata<sup>1</sup>, Yoshikazu Shimoda<sup>2</sup>, Fuyuko Shimoda-Sasakura<sup>3</sup>, Ei-ichi Murakami<sup>1</sup>, Akihiro Suzuki<sup>4</sup>, Mikiko Abe<sup>5</sup>, Ken-ichi Kuchō<sup>5</sup>, Shiro Higashi<sup>5</sup>, Toshiki Uchiumi<sup>5</sup>

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<sup>4</sup> Fac. Agr., Saga Univ., <sup>5</sup>Fac. Sci., Kagoshima Univ.

P31 β-Phenethylamine production in legume root nodules -Cross inoculation test of rhizobia isolated from soybean and peanut-

○Takuya Ando<sup>1</sup>, Hiroko Sawada<sup>2</sup>, Junko Terakado<sup>2 3</sup>, Shinsuke Fujihara<sup>1 2</sup>

<sup>1</sup>Univ.Tsukuba, <sup>2</sup>NARC, <sup>3</sup>JSPS

P32 Screening of symbiotic SNARE genes of *Lotus japonicus*.

○Misa Komi<sup>1</sup>, Tomomi Manabe<sup>1</sup>, Kumina Nagaoka<sup>1</sup>, Erika Asamizu<sup>2</sup>, Shuusei Sato<sup>2</sup>, Satoshi Tabata<sup>2</sup>, Kaoru Takegawa<sup>1</sup>, Mika Nomura<sup>1</sup>, Sigeyuki Tajima<sup>1</sup>

<sup>1</sup>Faculty of Agriculture, Kagawa Univ.<sup>2</sup>Kazusa DNA Research Institute

P33 Plant transformation by rhizobitoxine-producing *Agrobacterium tumefaciens*

○Ryota Haramaki<sup>1</sup>, Masayuki Sugawara<sup>1</sup>, Satoko Nonaka<sup>2</sup>, Hiroshi Ezura<sup>2</sup>, Shima Eda<sup>1</sup>, Hisayuki Mitsui<sup>1</sup>, Kiwamu Minamisawa<sup>1</sup>

<sup>1</sup>Graduate School of Life Sciences, Tohoku University, <sup>2</sup>Gene Research Center, Graduate

School of Life and Environmental Sciences, University of Tsukuba

P34 Characterization of *enf* (enhanced nitrogen fixation) mutants of *Lotus japonicus*

○ Youichiro Imazato<sup>1</sup>, Ayaka Yamauchi<sup>1</sup>, Akiyoshi Tominaga<sup>1</sup>, Toyoaki Anai<sup>1</sup>, Toshiki Uchiumi<sup>2</sup>, Mikiko Abe<sup>2</sup>, Ken-ichi Kucho<sup>2</sup>, Shiro Higashi<sup>2</sup>, Masatsugu Hashiguchi<sup>3</sup>, Ryo Akashi<sup>3</sup>, Shusei Sato<sup>4</sup>, Takakazu Kaneko<sup>4</sup>, Satoshi Tabata<sup>4</sup>, Susumu Arima<sup>1,\*</sup>, Akihiro Suzuki<sup>1</sup>

<sup>1</sup> Saga Univ., <sup>2</sup> Kagoshima Univ., <sup>3</sup> Univ. of Miyazaki, <sup>4</sup> Kazusa DNA Res. Inst.

P35 Regulatory mechanisms of salicylic acid biosynthesis in *Arabidopsis bah1* mutant

○ Takashi Yaeno<sup>1</sup>, Koh Iba<sup>2</sup>

<sup>1</sup> Grad. Sch. Systems Life Sciences, Kyushu Univ., <sup>2</sup> Dept. Biol., Kyushu Univ.

P36 Functional analysis of FEN1 that controls nitrogen fixing activity in nodules of *Lotus japonicus*

○ Tsuneo Hakoyama<sup>1,3</sup>, Kaori Niimi<sup>1</sup>, Hirokazu Watanabe<sup>1</sup>, Ryohei Tabata<sup>1</sup>, Junichi Matsubara<sup>1</sup>, Shusei Sato<sup>2</sup>, Yasukazu Nakamura<sup>2</sup>, Satoshi Tabata<sup>2</sup>, Haruko Imaizumi-Anraku<sup>3</sup>, Masayoshi Kawaguchi<sup>4</sup>, Hiroshi Kouchi<sup>3</sup>, Norio Suganuma<sup>1</sup>

<sup>1</sup> Aichi Univ. of Edu., <sup>2</sup> Kazusa DNA Research Inst., <sup>3</sup> NIAS, <sup>4</sup> Univ. of Tokyo

P37 Cell biological analyses of *Arabidopsis* defense response against powdery mildew infection

○ Noriko Inada<sup>1</sup>, Yohsuke Moriyama<sup>1</sup>, Wong Hann Ling<sup>2</sup>

<sup>1</sup> NAIST, Grad. Schl of Bioscience, Plant Unit, <sup>2</sup> NAIST, Grad. Schl of Bioscience, Plant Molecular Genetics

P38 The role of *HAR1* in defense mechanism against *Pseudomonas syringae* in *Lotus japonicus*.

○ Tomomi Nakagawa<sup>1</sup>, Kasumi Takeuchi<sup>1</sup>, Masayoshi Kawaguchi<sup>2,3</sup>, Hiroshi Kouchi<sup>1</sup>

<sup>1</sup> NIAS, <sup>2</sup> Tokyo Univ., <sup>3</sup> JST/CREST

P39 Isolation of a high activity nitrogen fixer, *Paenibacillus* sp. IM2-2 from the root-inside of gramineous plant, *Poa acroleuca*

○ Tetsuya Nagashima, Hitoshi Takeuchi, Ruiko Shibayama, Takeshi Uozumi

Graduate School of Agriculture, Meiji University

P40 Nitric oxide generation against plant pathogen in the leaf of *Lotus japonicus*

○ Ei-ichi Murakami<sup>1</sup>, Maki Nagata<sup>1</sup>, Kucho Ken-ichi<sup>2</sup>, Mikiko Abe<sup>2</sup>, Akihiro Suzuki<sup>3</sup>, Shiro Higashi<sup>2</sup>, Toshiki Uchiumi<sup>2</sup>

<sup>1</sup> Grad. Sc. Sci & Eng., Kagoshima Univ., <sup>2</sup> Fac. Sci., Kagoshima Univ., <sup>3</sup> Fac. Agr., Saga Univ.

P41 Isolation of a novel nitrogen fixer, *Acinetobacter* sp. AM12 from the rhizosphere of *Miscanthus sinensis*

○ Hitoshi Takeuchi, Tetsuya Nagashima, Ruiko Shibayama, Masayoshi Baba, Takeshi Uozumi Graduate School of Agriculture, Meiji University

P42 Branching factors for ecto- and arbuscular *mycorrhizal* fungi in *Eucalyptus* roots

Kohki Akiyama<sup>1,2</sup>, ○Sayuri Ueda<sup>1</sup>, Hideo Hayashi<sup>1</sup>

<sup>1</sup>Osaka Prefecture Univ., <sup>2</sup>CREST

P43 Isolation and identification of nitrogen-fixing bacterial strains, 1A-3, 3M-3 and 8A-7, from rhizosphere of graminaceous plants

○Ruiko Shibayama, Hitoshi Takeuchi, Tetsuya Nagashima, Takeshi Uozumi

Graduate School of Agriculture, Meiji University

P44 Stereospecificity of saturated strigolactone analogs in hyphal branching of arbuscular *mycorrhizal* fungi

Kohki Akiyama<sup>1,2</sup>, ○Shin Ogasawara<sup>1</sup>, Hideo Hayashi<sup>1</sup>

<sup>1</sup>Osaka Prefecture Univ., <sup>2</sup>CREST

P45 Analysis of QTLs for infection thread formation in *Lotus japonicus*.

○Noriyuki Nukui<sup>1</sup>, Kenji Kato<sup>4</sup>, Takahiro Gondo<sup>2</sup>, Sachiko Isobe<sup>3</sup>, Shin-ichi Ayabe<sup>4</sup>, Toshio Aoki<sup>4</sup>

<sup>1</sup>Genaris, Inc., <sup>2</sup>Miyazaki Univ. Frontier Science Research Center, <sup>3</sup>Kazusa DNA Res.Inst., <sup>4</sup>Nihon Univ. College of Bioresource sciences.

P46 Identification of hyphal growth inhibitors against AM fungi in the root exudates from an AM non-host plant white lupin (*Lupinus albus*)

Kohki Akiyama<sup>1,2</sup>, ○Fumiaki Tanigawa<sup>1</sup>, Hideo Hayashi<sup>1</sup>

<sup>1</sup>Osaka Prefecture Univ., <sup>2</sup>CREST

P47 Effect of rhizosphere microorganism on utilization of soil phytate as a P source by *Lotus japonicus*.

○Sakiko Nakashima<sup>1</sup>, Shoichi Okajima<sup>1</sup>, Yusuke Unno<sup>1,4</sup>, Takuro Shinano<sup>2</sup>, Benjamin L. Turner<sup>3</sup>, Mitsuru Osaki<sup>1</sup>

<sup>1</sup>Grad.Agr., Hokkaido Univ., <sup>2</sup>CRIS, Hokkaido Univ., <sup>3</sup>Smithsonian Tropical Res.Inst., <sup>4</sup>JSPS

P48 ATP-dependent polyphosphate synthetic activity in arbuscular *mycorrhizal* fungi -Induction by phosphate and enzymatic characterization-

○Chiharu Tani<sup>1</sup>, Ryo Ohtomo<sup>2</sup>, Mitsuru Osaki<sup>1</sup>, Tatsuhiro Ezawa<sup>1</sup>

<sup>1</sup>Hokkaido Univ., <sup>2</sup>National Institute of Livestock and Grassland Science