The 23rd Annual Meeting for Plant-Microbe Interactions Program

September 7 (Saturday)

Opening Address: 13:30 - 14:40

Oral Presentations: 14:40 - 15:10

1. Identification of rhizobial factors that determine Fix- phenotype of host legume mutant
Yoshikazu Shimoda[1], Hiroko Yamaya[1], Kazuhiko Saeki[2], Hiroko Maita[3], Hideki Hirakawa[3], Shusei Sato[3], Yuki Nishigaya[1], Toshimasa Yamazaki[1], Hiroshi Kouchi[1], Yosuke Umehara[1], Makoto Hayashi[1] ([1]NIAS, [2]Nara Womens Univ., [3]Kazusa DNA Res. Inst.)

2. The unique symbiotic feature of divergent nod-containing *Bradyrhizobium* sp. DOA9 nodulating *Aeschynomene americana*
Kamonluck Teamtisong[1], Pongpan Songwattana[1], Rujirek Noisa-ngiam[1], Pongdet Piromyou[1], Nantakorn Boonkerd[1], Panlada Tittaburt[1], Kiwamu Minamisawa[2], Achara Nantakit[3], Shin Okazaki[4], Mikiko Abe[5], Uchiumi Toshiki[5], Neung Teaumroong[1] ([1]SUT, [2]Tohoku Univ., [3]D. A. Thai, [4]TUAT, [5]Kagoshima Univ.)

3. A novel regulation system for transcription of *nos* genes in *Bradyrhizobium japonicum*
Cristina Sanchez, Manabu Itakura, Hisayuki Mitsui and Kiwamu Minamisawa (Graduate School of Life Sciences, Tohoku University)

4. A new functional aspect of NODULE INCEPTION: a negative regulator of rhizobial infection
Emiko Yoro[1,2], Takuya Suzaki[1,2], Koichi Toyokura[3], Hikota Miyazawa[4], Hidehiro Fukaki[3], Masayoshi Kawaguchi[1,2] ([1]NIBB, [2]SOKENDAI, [3]Kobe Univ., [4]Hokkaido Univ.)

5. Root-derived CLE peptides control nodulation by direct binding to HAR1 receptor kinase
Satoru Okamoto, Hidefumi Shinohara, Tomoko Mori, Yoshikatsu Matsubayashi, Masayoshi Kawaguchi (National Institute for Basic Biology)

6. Upgraded genomic information of *Lotus japonicus* toward functional genomics
Shusei Sato[1,2], Hideki Hirakawa[1], Satoshi Tabata[1], Vikas Gupta[3], Katharina Markmann[3], Haojie Jin[3], Niels Sandal[3], Jens Stougaard[3], Stig U. Andersen[3]
([1]Kazusa DNA Res. Inst., [2]Tohoku Univ., [3]Aarhus Univ)

Coffee Break: 15:10 - 15:25

Discussion 1: 15:25 – 15:55

Coffee Break: 15:55 - 16:10

Keynote Lecture 1: 16:10 - 17:10
"Biology of luminescence"
Dr. Yuichi Oba, Graduate School of Bioagricultural Sciences, Nagoya University

Mixer: 17:10 -

September 8 (Sunday)

Poster 90 sec Oral Presentation: 9:00 - 9:50

Coffee Break: 9:50 - 10:00

Poster Presentations (Odd Numbers): 10:00 - 11:00

Poster Presentations (Even Numbers): 11:00 - 12:00

Lunch

Oral Presentations: 14:00 - 15:15

7. Effect of red/far-red ratio on mycorrhizal infection in higher plant
Maki NAGATA, Naoya YAMAMOTO, Susumu ARIMA, Toyoaki ANAI, Akihiro SUZUKI (Faculty of Agriculture, Saga Univ.)

8. Phosphate supply transiently compromises new arbuscule formation in mycorrhizal roots of rice
Yoshihiro Kobae, Yoshihiro Ohmori, Toru Fujiwara (Univ. Tokyo)

9. Viruses in arbuscular mycorrhizal fungi: the third player in mycorrhizal symbiosis
Yoji Ikeda, Ryoko Kitahara, Hanako Shimura, Chikara Masuta and Tatsuhiro Ezawa (Hokkaido Univ.)

10. Infection steps of Meloidogyne incognita in Arabidopsis
Chica Ejima, Noriko, Shimizu, Hidetaka, Nishiyama, and Shinichiro Sawa (Kumamoto Univ., Graduate school of science and technology)

11. Root-knot nematodes hijack symbiosis genes of the host plant for parasitic infestation
Hikota Miyazawa[1], Shuhei Hayashi[1], Takuya Suzaki[2], Masayoshi Kawaguchi[2], Derek Goto[1] ([1]Hokkaido Univ., [2]NIBB)

Coffee Break: 15:15 - 15:30

Discussion 2: 15:30 - 16:30

Coffee Break: 16:30 - 16:45

Keynote Lecture 2: 16:45 - 17:35
"**Oligosaccharides participating with symbiosis in Rhizobium and leguminous host**"
Dr. Mikiko Abe, Graduate School of Science and Engineering, Kagoshima University

Welcome Reception: 18:00 -

September 9 (Monday)

Oral Presentations: 9:00 - 10:00

12. Isolation of mutants of the nitrogen-fixing actinomycete *Frankia*
Kentaro Kakoi[1], Masatoshi Yamaura[1], Toshihito Kamiharai[1], Daiki Tamari[2], Mikiko Abe[1], Toshiki Uchiumi[1], and Ken-ichi Kucho[1] ([1]Graduate School of Science and Engineering, Kagoshima University, [2]Undergraduate School of Science, Kagoshima University)

13. Complete genome sequence of a novel plant-associated bacterium, *Aureimonas* sp. AU20
Mizue Anda, Yoshiyuki Otsubo, Takashi Okubo, Hisayuki Mitsui, Yuji Nagata, Masataka Tsuda, Kiwamu Minamisawa (Graduate School of Life Sciences, Tohoku Univerisity)

14. Examination of fertilizer components to enhance the growth promoting effect of rice inoculated with bacterial endophyte

Satoru Kanai[1], Rei Ikeuchiv, Junta Hirayama[1], Tsuyoshi Isawa[1], Munehiro Noda[1], Yukio Kanuka[2], Yui Funaki[2], Tadasu Emoto[2], Satoshi Shinozaki[1] ([1]Mayekawa MFG Co., Ltd., [2]ECONiXE Co., Ltd.)

15. Exploration of bacterial endophyte to promote plant growth in Brassicaceae plants
Rei Ikeuchi, Satoru Kanai, Munehiro Noda, Junta Hirayama, Tuyoshi Isawa, Satoshi Shinozaki (Mayekawa MFG Co., Ltd.)

Coffee Break: 10:00 - 10:15

Oral Presentations: 10:15 - 11:15

16. LjEIN2-1 and LjEIN2-2 cooperatively regulate ethylene signaling and nodulation in *Lotus japonicus*.
Kana Miyata[1], Masayoshi Kawaguchi[2], Tomomi Nakagawa[1] ([1]Meiji Univ., [2]National Institute for Basic Biology)

17. Jasmonic acid-regulated process(es) is required for disease development on *Medicago truncatula* leaves infected by *Mycosphaerella pinodes*
Yukio Nogawa[1], Mayumi Morizane[1], Suhei Yoshizawa[1], Satoki Yamamoto[1], Yoshiteru Noutoshi[1], Yoshishige Inagaki[1], Mikihiro Yamamoto[1], Yuki Ichinose[1], Tomonori Shiraishi[1,2], Kazuhiro Toyoda[1] ([1]Okayama Univ., [2] RIBS Okayama)

18. Expression profiles of chitinases and chitin elicitor receptor kinases in *Physcomitrella patens*
Saki Inamine[1], Kenichi Kucho[1], Mikiko Abe[1], Toshiki Uchiumi[1], Toki Taira[2] ([1]Kagoshima Univ, [2]Univ. Ryukyus)

19. Study of mycorrhizal symbiosis in *Marchantia paleacea* var. *diptera*
Tomomi Nakagawa[1], Toshinori Kozaki[2], Keiko Sakakibara[3], Kimitsune Ishizaki[4], Norichika Ogata[2], Ayano Miyamoto[1], Kazuo Ishii[2], Masaki

Shimamura[5], Hanae Kaku[1], Takayuki Kohchi[6], Naoto Shibuya[1]
([1]Meiji Univ., [2]Tokyo Univ. of Agriculture and Tech., [3]Tokyo Univ., [4]Kobe Univ., [5]Hiroshima Univ., [6]Kyoto Univ.)

Coffee Break: 11:15 - 11:30

Discussion 3: 11:30 - 12:00

General Meeting: 12:00 -

Poster Number

P1. Structural stadies of glycoconjugate from *Frankia alni*
Seiya Ogawa[1], Tomohiro Kenmochi[1], Yasuo Suda[1], Akihiko Ono[1], Toshiki Uchiumi[1], Mikiko Abe[1], Pascale Fournier[2], Anne-Emmanuelle Hay[2], Peter Pujic[2], Philippe Normand[2], Masahito Hashimoto[1], Ken-ichi Kucho[1] ([1]Kagoshima Univ., [2]Lyon Univ.)

P2. Attempt to transform Frankia using a new-type electroporator
Toshihito Kamiharai,Kentaro Kakoi, Akihiko Ono, Mikiko Abe, Toshiki Uchiumi, Ken-ichi Kucho (Kagoshima Univ.)

P3. The influence of *Alnus sieboldiana* extractives to *Frankia* growth and root nodule formation
Shingo Kawai[1], Takahiro Kaneko[1], Yuko Yoneda[1], Tomoaki Nishida[1], Takashi Yamanaka[2] ([1]Shizuoka Univ., [2]Foresty & Forest Products Res. Inst.)

P4. Analysis of the blr7984 gene function of soybean rhizobia *Bradyrhizobium japonicum* USDA110
Haruna Homma[1], Naoko Ohtsu[1], Maki Nagata², Akihiro Suzuki[2], Tadashi Yokoyama[1] ([1]Tokyo Univ. of Agriculture and Tech., [2]Saga Univ.)

P5. Genome analysis of a high temperature tolerant mutant of *Bradyrhizobium japonicum* USDA110 generated by ion-beam microbial mutation-breeding technology
Kiyoko Takeda[1,2], Katsuya Satoh[2], Issay Narumi[3], Naoko Ohkama-Ohtsu[4], Tadashi Yokoyama[4] ([1]United Graduate School of Agricultural Science, Tokyo University of Agriculture and Technology, [2]Quantum Beam Science Directorate, Japan Atomic Energy Agency, [3]Faculty of Life Sciences, Toyo University, [4]Institute of Agriculture, Tokyo University of Agriculture and Technology)

P6. Role of *Bradyrhizobium japonicum* TetR family genes in the early interaction with *Glycine max* (L.) Merr.
Keisuke Takeshima[1], Tatsuo Hidaka[1], Min Wei[2], Koumei Taneda[1], Tatsumi Ito[1], Takuji Ohwada[1] ([1]Department of Food Science, Obihiro University of Agriculture and Veterinary Medicine, [2]Key Laboratory for Arid and Grassland Ecology of the Ministry of Education, Lanzhou University)

P7. Comparative genomic analysis of *Bradyrhizobium elkanii* strains
Kouki Miyazawa[1], Shusei Sato[2], Hideki Hirakawa[3], Shin Okazaki[4], Kazuhiko Saeki[5], Takakazu Kaneko[1] ([1]Kyoto Sangyo Univ., [2]Tohoku Univ., [3]Kazusa DNA Res. Inst., [4]Tokyo Univ. of Agriculture and Technol., [5]Nara Women's Univ.)

P8. Salinity tolerance of *Mesorhizobium loti* isolates from various locations in Japan
Kazuna Kubota[1], Hiroko Kasai-Maita[2], Hideki Hirakawa[2], Shusei Sato[3], Kazuhiko Saeki[1] ([1]Dpt of Biol Sci, Nara Women's Univ, [2]Kazusa DNA Res Inst, [3]Grad Sch of Life Sci, Tohoku Univ)

P9. Host symbiosis genes are essential for functional feeding sites induced by root-knot nematodes
Hikota Miyazawa[1], Shuhei Hayashi[1], Takuya Suzaki[2], Masayoshi Kawaguchi[2], Derek Goto[1] ([1]Hokkaido Univ., [2]NIBB)

P10. Antimicrobial activity of cysteine-rich peptides in the symbiotic organs both of plants and insects
Nahoko Uchi[1], Shuji Shigenobu[2], Ken-ichi Kucho[1], Mikiko Abe[1], Shiro Higashi[1], Eva Kondorosi[3], Peter Mergaert[3], Toshiki Uchiumi[1] ([1]Graduate School of Science and Engineering, Kagoshima University, [2]National Institute for Basic Biology, [3]Institute des Sciences du Végétal-CNRS)

P11. Novel interactors of nod factor receptor affect the nodulation phenotype of *Lotus japonicus*

Akihiro Yamazaki, Yoshikazu Shimoda, Makoto Hayashi (NIAS)

P12. Mapping of QTLs involved in a performance of nitrogen fixation by using *Lotus japonicus* recombinant inbred lines
Akira Miyahara[1], Fukuyo Tanaka[2], Makoto Hayashi[1] ([1]NIAS, [2]NARO)

P13. Effect of *β*-1,3-glucanase gene (*LjGlu1*) for nodulation on *Lotus japonicus*
Iwasaki, N.[1], Suzuki, A.[2], Osuki, K.[1], Takahara, A.[1], Araragi, M.[1], Kucho, K.[1], Higashi, S.[1], Abe, M[1] and Uchiumi, T.[1] ([1]Graduate School of Science and Engineering, Kagoshima Univ., [2]Department of Environmental Science, Saga Univ.)

P14. NSP1 acts in distinct pathways for root nodule and arbuscular mycorrhiza symbioses
Keisuke Yokota, Makoto Hayashi (NIAS)

P15. Effect of light irradiation to the root on root nodule formation and rhizobial proliferation
Aya Shimomura[1], Nobuyuki Miyazaki[1], Naoya Yamamoto[1], Sayaka Moriuchi[1], Hideki Hirakawa[2], Shusei Sato[3], Satoshi Tabata[2], Susumu Arima[1], Akihiro Suzuki[1] ([1]Faculty of Agriculture, Saga Univ., [2]Kazusa DNA Res. Inst., [3]Tohoku Univ.)

P16. Light quality controls mycorrhizal infection in *Lotus japonicus*
Naoya Yamamoto, Maki Nagata, Susumu Arima, Akihiro Suzuki (Faculty of Agriculture, Saga Univ.)

P17. Functional analysis of GRAS family transcription factor LjSCL3 specifically induced by arbuscular mycorrhizal symbiosis in *Lotus japonicus*
Miho Takahashi[1], Yohei Iguchi[1], Naoya Takeda[2], Masayoshi Kawaguchi[2], Hironori Kaminaka[1], ([1]Faculty of Agriculture, Tottori University, [2]National Institute for Basic Biology)

P18. Hyphal elongation mechanisms of arbuscular mycorrhiza suggested by transcriptome analysis of *cerberus* mutant in *Lotus japonicus*
Mai Fukuhara[1,2], Yoshihiro Handa[1], Naoya Takeda[1,2], Masayoshi Kawaguchi[1,2] ([1]NIBB, [2]SOKENDAI)

P19. Comparison of defense and symbiotic responses in *Marchantia paleacea* subsp. *diptera*
Ayano Miyamoto[1], Toshinori Kozaki[2], Keiko Sakakibara[3], Kimitsune Ishizaki[4], Norichika Ogata[2], Kazuo Ishii[2], Masaki Shimamura[5], Hanae Kaku[1], Takayuki Kohchi[6], Naoto Shibuya[1], Tomomi Nakagawa[1] ([1]Meiji Univ., [2]Tokyo Univ. of Agriculture and Tech., [3]Tokyo Univ., [4]Kobe Univ., [5]Hiroshima Univ., [6]Kyoto Univ.)

P20. Involvement of strigolactone secretion profile in compatibility and selectivity of arbuscular mycorrhizal fungi in maize
Ryota Arakawa[1], Kaori Yoneyama[2], Sohei Kobayashi[3], Koichi Yoneyama[2], Tatsuhiro Ezawa[1] ([1]Hokkaido Univ., [2]Utsunomiya Univ., [3]NARC for Hokkaido Region)

P21. Significance of mycorrhizal symbiosis in acidic soil: acid-tolerant arbuscular mycorrhizal fungi provide an alternative pathway of nutrient uptake for damaged roots
Ai Kawahara, Riko Sato, Tatsuhiro Ezawa (Hokkaido Univ.)

P22. Plant viral vector-mediated gene silencing in arbuscular mycorrhizal fungi: possible role of a water channel in long-distance phosphate translocation through hyphae
Yusuke Kikuchi[1], Yoshifumi Uchio[1], Katsuharu Saito[2], Chikara Masuta[1], Tatsuhiro Ezawa[1] ([1]Hokkaido Univ., [2]Shinshu Univ.)

P23. Transcriptome analysis of non-symbiosis/symbiosis state in arbuscular mycorrhizal fungi by RNA-seq

Syusaku Tsuzuki[1], Naoya Takeda[2], Yoshihiro Handa[2], Masayoshi Kawaguchi[1,2] ([1]The Graduate Univ. for Advanced Studies, [2]NIBB)

P24. Detection and isolation of hydrogen-fixing endophytic bacteria
Manabu Kanno[1], Philippe Constant[2], Hideyuki Tamaki[1], Yoichi Kamagata[1] ([1]AIST, [2]INRS Canada)

P25. Genome analysis of *Methylobacterium* sp. AMS5 isolated from hypernodulation soybean and its colonization pattern on *Lotus japonicus*
Tomoyuki Minami, Mizue Anda, Takashi Okubo, Hisayuki Mitsui, Yoshiyuki Ohtsubo, Yuji Nagata, Masataka Tsuda, Kiwamu Minamisawa (Graduate school of life sciences, Tohoku University)

P26. Comparison of the physiologic response of several rice cultivars to inoculation by *Bacillus pumilus* TUAT1 spores
Hiroko Yamaya, Chihiro Todate, Masahiro Hosono, Naoko Ohtsu, Taiichiro Ookawa, Tadashi Yokoyama (Tokyo Univ. of Aguliculture and Technology)

P27. Factors affecting dihydromaleimide (DHM)-induced resistance on *Arabidopsis thaliana*
Kentaro Iio[1], Chie Kamada[1], Minoru Izumi[1], Yoshiteru Noutoshi[1], Yoshishige Inagaki[1], Mikihiro Yamamoto[1], Yuki Ichinose[1], Tomonori Shiraishi[1,2], Kazuhiro Toyoda[1] ([1]Okayama Univ., [2]RIBS Okayama)

P28. Induced resistance on *Arabidopsis thaliana* exposed to gaseous limonene
Kayoko Fujioka[1], Kentaro Iio[1], Yoshiteru Noutoshi[1], Yoshishige Inagaki[1], Mikihiro Yamamoto[1], Yuki Ichinose[1], Tomonori Shiraishi[1,2], Kazuhiro Toyoda[1] ([1]Okayama Univ., [2]RIBS Okayama)

P29. Endogenous suppressors in *Arabidopsis thaliana*

Tatsuhiro Kawasaki[1], Sachiko Abe[1], Yoshiteru Noutoshi[1], Yoshishige Inagaki[1], Mikihiro Yamamoto[1], Yuki Ichinose[1], Tomonori Shiraishi[1,2], Kazuhiro Toyoda[1] ([1]Okayama Univ., [2]RIBS Okayama)

P30. Factors affecting extracellular peroxidase-catalyzed oxidative burst in cowpea

Kaori Tanaka[1], Manami Chaya[1], Yoshiteru Noutoshi[1], Yoshishige Inagaki[1], Mikihiro Yamamoto[1], Yuki Ichinose[1], Tomonori Shiraishi[1,2], Kazuhiro Toyoda[1] ([1]Okayama Univ., [2] RIBS Okayama)

P31. Production of anti-microbial compound(s) in the extracellular space of cowpea leaves exposed to elicitors

Maki Uchioki[1], Kaori Tanaka[1], Yoshiteru Noutoshi[1], Yoshishige Inagaki[1], Mikihiro Yamamoto[1], Yuki Ichinose[1], Tomonori Shiraishi[1,2], Kazuhiro Toyoda[1] ([1]Okayama Univ., [2]RIBS Okayama)