

CV

Kenro Oshima

Education and Professional Training

- 1993 B.S. (Agriculture) Faculty of Agriculture, University of Tokyo, Japan.
- 1995 M.S. (Agriculture) Graduate School of Agricultural and Life Sciences, University of Tokyo, Japan.
- 1998 Ph.D. (Agriculture) Graduate School of Agricultural and Life Sciences, University of Tokyo, Japan.
Theme: Functional analysis of accessory proteins in the maturation step of the urease from thermophilic *Bacillus* sp. Strain TB-90.
Name of the mentor: Takeshi Uozumi
- 1998-2001 Postdoctoral Associate Researcher, Department of Agricultural and Environmental Biology, Graduate School of Agricultural and Life Sciences, University of Tokyo, Japan.
Name of the mentor: Shigetou Namba
- 2001-2004 Postdoctoral Associate Researcher, Department of Integrated Biosciences, Graduate School of Frontier Sciences, The University of Tokyo, Japan.
- 2004-2006 Assistant Professor, Agricultural bioinformatics research unit, Graduate School of Agricultural and Life Sciences, The University of Tokyo, Japan.
- 2006-2009 Assistant Professor, Department of Agricultural and Environmental Biology, Graduate School of Agricultural and Life Sciences, University of Tokyo, Japan.
- 2009-2014 Associate Professor, Department of Agricultural and Environmental Biology, Graduate School of Agricultural and Life Sciences, University of Tokyo, Japan.
- 2014- Professor, Department of Clinical Plant Science, Faculty of Bioscience, Hosei University, Japan.

A list of publications

1. Iwabuchi, N., Endo, A., Kameyama, N., Satoh, M., Miyazaki, A., Koinuma, H., Kitazawa, Y., Maejima, K., Yamaji, Y., Oshima, K. & Namba, S. (2018). The first report of 'Candidatus *Phytoplasma malaysiaicum*' associated with *Elaeocarpus* yellows of *Elaeocarpus zollingeri*. **J. Gen. Plant Pathol.** 84, 160-164.
2. Nijo, T., Neriya, Y., Koinuma, H., Iwabuchi, N., Kitazawa, Y., Tanno, K., Okano, Y., Maejima, K., Yamaji, Y., Oshima, K. & Namba, S. (2017). Genome-wide analysis of the

- transcription start sites and promoter motifs of phytoplasmas. **DNA Cell Biol.** 36, 1081-1092.
3. Kitazawa, Y., Iwabuchi, N., Himeno, M., Sasano, M., Koinuma, H., Nijo, T., Tomomitsu, T., Yoshida, T., Okano, Y., Yoshikawa, N., Maejima, K., Oshima, K. & Namba, S. (2017). Phytoplasma-conserved phyllogen proteins induce phyllody across the Plantae by degrading floral MADS domain proteins. **J. Exp. Bot.** 68, 2799-2811.
 4. Maejima, K., Kitazawa, Y., Tomomitsu, T., Yusa, A., Neriya, Y., Himeno, M., Yamaji, Y., Oshima, K. & Namba, S. (2015). Degradation of class E MADS-domain transcription factors in Arabidopsis by a phytoplasmal effector, phyllogen. **Plant Signal Behav.** 10, e1042635.
 5. Miura, C., Komatsu, K., Maejima, K., Nijo, T., Kitazawa, Y., Tomomitsu, T., Yusa, A., Himeno, M., Oshima, K. & Namba, S. (2015). Functional characterization of the principal sigma factor RpoD of phytoplasmas via an in vitro transcription assay. **Sci. Rep.** 5, Article 11893.
 6. Fukuda, K., Hamamoto, H., Hashimoto, M., Nakayama, M., Netsu, O., Kagiwada, S., Oshima, K. & Namba, S. (2015). A survey on the current status of plant disease control by agricultural firms and farmers in Japan. **Jpn. J. Phytopathol.** 81, 127-135.
 7. Maejima, K., Oshima, K. & Namba, S. (2014). Exploring the phytoplasmas, plant pathogenic bacteria. **Jpn. J. Phytopathol.** 80, 124-133.
 8. Minato, N., Himeno, M., Hoshi, A., Maejima, K., Komatsu, K., Takebayashi, Y., Kasahara, H., Yusa, A., Yamaji, Y., Oshima, K., Kamiya, Y. & Namba, S. (2014). The phytoplasmal virulence factor TENGU causes plant sterility by downregulating of the jasmonic acid and auxin pathways. **Sci. Rep.** 4, Article 7399.
 9. Neriya, Y., Maejima, K., Nijo, T., Tomomitsu, T., Yusa, A., Himeno, M., Netsu, O., Hamamoto, H., Oshima, K. & Namba, S. (2014). Onion yellow phytoplasma P38 protein plays a role in adhesion to the hosts. **FEMS Microbiol. Lett.** 361, 115-122.
 10. Okano, Y., Senshu, H., Hashimoto, M., Neriya, Y., Netsu, O., Minato, N., Yoshida, T., Maejima, K., Oshima, K., Komatsu, K., Yamaji, Y. & Namba, S. (2014). In planta recognition of a double-stranded RNA synthesis protein complex by a potexviral RNA silencing suppressor. **Plant Cell** 26, 2168-2183.
 11. Maejima, K., Oshima, K. & Namba, S. (2014). Exploring the phytoplasmas, plant pathogenic bacteria. **J. Gen. Plant Pathol.** 80, 210-221.
 12. Maejima, K., Iwai, R., Himeno, M., Komatsu, K., Kitazawa, Y., Fujita, N., Ishikawa, K., Fukuoka, M., Minato, N., Yamaji, Y., Oshima, K. & Namba, S. (2014). Recognition of floral homeotic MADS domain transcription factors by a phytoplasmal effector, phyllogen, induces phyllody. **Plant J.** 78, 541-554.

13. Himeno, M., Kitazawa, Y., Yoshida, T., Maejima, K., Yamaji, Y., [Oshima, K.](#) & Namba, S. (2014). Purple top symptoms are associated with reduction of leaf cell death in phytoplasma-infected plants. **Sci. Rep.** 4, Article 4111.
14. [Oshima, K.](#), Maejima, K. & Namba, S. (2013). Genomic and evolutionary aspects of phytoplasmas. **Front. Microbiol.** 4, Article 230.
15. Sugawara, K., Honma, Y., Komatsu, K., Himeno, M., [Oshima, K.](#) & Namba, S. (2013). The alteration of plant morphology by small peptides released from the proteolytic processing of the bacterial peptide TENGU. **Plant Physiol.** 162, 2005-2014.
16. Ishii, Y., Kakizawa, S. & [Oshima, K.](#) (2013). New ex vivo reporter assay system reveals that σ factors of an unculturable pathogen control gene regulation involved in the host-switching between insects and plants. **MicrobiologyOpen** 2, 553-565.
17. Takinami, Y., Maejima, K., Takahashi, A., Keima, T., Shiraiishi, T., Okano, Y., Komatsu, K., [Oshima, K.](#) & Namba, S. (2013). First report of 'Candidatus Phytoplasma asteris' infecting hydrangea showing phyllody in Japan. **J. Gen. Plant Pathol.** 79, 209-213.
18. Miura, C., Sugawara, K., Neriya, Y., Minato, N., Keima, T., Himeno, M., Maejima, K., Komatsu, K., Yamaji, Y., [Oshima, K.](#) & Namba, S. (2012). Functional characterization and gene expression profiling of superoxide dismutase from plant pathogenic phytoplasma. **Gene** 510, 107-112.
19. Nishida, H., Kondo, S., Nojiri, H., Noma, K. & [Oshima, K.](#) (2012). Evolutionary mechanisms of microbial genomes 2012. **Int. J. Evol. Biol.** Article ID 872768.
20. Sugawara, K., Himeno, M., Keima, T., Kitazawa, Y., Maejima, K., [Oshima, K.](#) & Namba, S. (2012). Rapid and reliable detection of phytoplasma by loop-mediated isothermal amplification targeting a housekeeping gene. **J. Gen. Plant Pathol.** 78, 389-397.
21. [Oshima, K.](#), Chiba, Y., Igarashi, Y., Arai, H. & Ishii, M. (2012). Phylogenetic position of Aquificales based on the whole genome sequences of six *Aquificales* species. **Int. J. Evol. Biol.** Article ID 859264.
22. Chiba, Y., [Oshima, K.](#), Arai, H., Ishii, M. & Igarashi, Y. (2012). Discovery and analysis of cofactor-dependent phosphoglycerate mutase homologs as novel phosphoserine phosphatases in *Hydrogenobacter thermophilus*. **J. Biol. Chem.** 287, 11934-11941.
23. Neriya, Y., Sugawara, K., Maejima, K., Hashimoto, M., Komatsu, K., Minato, N., Miura, C., Kakizawa, S., Yamaji, Y., [Oshima, K.](#) & Namba, S. (2011). Cloning, expression analysis, and sequence diversity of genes encoding two different immunodominant membrane proteins in poinsettia branch-inducing phytoplasma (PoiBI). **FEMS Microbiol. Lett.** 324, 38-47.
24. Himeno, M., Neriya, Y., Minato, N., Miura, C., Sugawara, K., Ishii, Y., Yamaji, Y., Kakizawa, S., [Oshima, K.](#) & Namba, S. (2011). Unique morphological changes in plant

- pathogenic phytoplasma-infected petunia flowers are related to transcriptional regulation of floral homeotic genes in an organ-specific manner. **Plant J.** 67, 971-979.
25. Oshima, K., Ishii, Y., Kakizawa, S., Sugawara, K., Neriya, Y., Himeno, M., Minato, N., Miura, C., Shiraishi, T., Yamaji, Y. & Namba, S. (2011). Dramatic transcriptional changes in an intracellular parasite enable host switching between plant and insect. **PLoS One** 6, e23242.
 26. Nishida, H., Kondo, S., Nojiri, H., Noma, K. & Oshima, K. (2011). Evolutionary mechanisms of microbial genomes. **Int. J. Evol. Biol.** 2011, Article ID 319479.
 27. Mitrovic, J., Kakizawa, S., Duduk, B., Oshima, K., Namba, S. & Bertaccini, A. (2011). The *groEL* gene as an additional marker for finer differentiation of '*Candidatus* Phytoplasma asteris'-related strains. **Ann. Appl. Biol.** 159, 41-48.
 28. Kawanishi, T., Shiraishi, T., Okano, Y., Sugawara, K., Hashimoto, M., Maejima, K., Komatsu, K., Kakizawa, S., Yamaji, Y., Hamamoto, H., Oshima, K. & Namba, S. (2011). New detection systems of bacteria using highly selective media designed by SMART: selective medium-design algorithm restricted by two constraints. **PLoS One** 6, e16512.
 29. Oshima, K., Ueda, K., Beppu, T. & Nishida, H. (2011). Unique evolution of *Symbiobacterium thermophilum* suggested from gene content and orthologous protein sequence comparisons. **Int. J. Evol. Biol.** 2011, Article ID 376831.
 30. Maejima, K., Himeno, M., Komatsu, K., Takinami, Y., Hashimoto, M., Takahashi, S., Yamaji, Y., Oshima, K. & Namba, S. (2011). Molecular Epidemiology of Plum pox virus in Japan. **Phytopathology** 101, 567-574.
 31. Kagiwada, S., Kayano, Y., Hoshi, H., Kawanishi, T., Oshima, K., Hamamoto, H., Horie, H. & Namba, S. (2010). First report of Choanephora rot of ice plant (*Mesembryanthemum crystallinum*) caused by *Choanephora cucurbitarum* in Japan. **J. Gen. Plant Pathol.** 76, 345-347.
 32. Hirata, H., Yamaji, Y., Komatsu, K., Kagiwada, S., Oshima, K., Okano, Y., Takahashi, S., Ugaki, M. & Namba, S. (2010). Pseudo-polyprotein translated from the full-length ORF1 of capillovirus is important for pathogenicity, but a truncated ORF1 protein without variable and CP regions is sufficient for replication. **Virus Res.** 152, 1-9.
 33. Hoshi, A., Kakizawa, S., Ishii, Y., Kojima, N., Sugawara, K., Okano, Y., Maejima, K., Oshima, K. & Namba, S. (2010). A virulence factor of phytoplasma inducing witches' broom and dwarfism symptoms. **Phytopathology** 100, S52.
 34. Hoshi, A.* , Oshima, K.*, Kakizawa, S.* , Ishii, Y., Ozeki, J., Hashimoto, M., Komatsu, K., Kagiwada, S., Yamaji, Y. & Namba, S. (2009). A unique virulence factor for proliferation and dwarfism in plants identified from a phytopathogenic bacterium. **Proc. Natl. Acad. Sci. U. S. A.** 106, 6416-6421. (* co-first authors)

35. Kakizawa, S., Oshima, K., Ishii, Y., Hoshi, A., Maejima, K., Jung, H.Y., Yamaji, Y. & Namba, S. (2009). Cloning of immunodominant membrane protein genes of phytoplasmas and their *in planta* expression. **FEMS Microbiol. Lett.** 293, 92-101.
36. Ishii, Y., Oshima, K., Kakizawa, S., Hoshi, A., Maejima, K., Kagiwada, S., Yamaji, Y. & Namba, S. (2009). Process of reductive evolution during 10 years in plasmids of a non-insect-transmissible phytoplasma. **Gene** 446, 51-56.
37. Ishii, Y., Kakizawa, S., Hoshi, A., Maejima, K., Kagiwada, S., Yamaji, Y., Oshima, K. & Namba, S. (2009). In the non-insect-transmissible line of onion yellows phytoplasma (OY-NIM), the plasmid-encoded transmembrane protein ORF3 lacks the major promoter region. **Microbiology-(UK)** 155, 2058-2067.
38. Arashida, R., Kakizawa, S., Ishii, Y., Hoshi, A., Jung, H.Y., Kagiwada, S., Yamaji, Y., Oshima, K. & Namba, S. (2008). Cloning and characterization of the antigenic membrane protein (Amp) gene and in situ detection of Amp from malformed flowers infected with Japanese hydrangea phyllody phytoplasma. **Phytopathology** 98, 769-775.
39. Hogenhout, S.A., Oshima, K., Ammar, E.D., Kakizawa, S., Kingdom, H.N. & Namba, S. (2008). Phytoplasmas: bacteria that manipulate plants and insects. **Mol. Plant Pathol.** 9, 403-423.
40. Oshima, K. & Nishida, H. (2008). Detection of the genes evolving under *Ureaplasma*-specific selection. **J. Mol. Evol.** 66, 529-532.
41. Arashida, R., Kakizawa, S., Hoshi, A., Ishii, Y., Jung, H.Y., Kagiwada, S., Yamaji, Y., Oshima, K. & Namba, S. (2008). Heterogeneous dynamics of the structures of multiple gene clusters in two pathogenetically different lines originating from the same phytoplasma. **DNA Cell Biol.** 27, 209-217.
42. Hoshi, A., Ishii, Y., Kakizawa, S., Oshima, K. & Namba, S. (2007). Host-parasite interaction of phytoplasmas from a molecular biological perspective. **Bull. Insectology** 60, 105-107.
43. Oshima, K. & Nishida, H. (2007). Phylogenetic relationships among mycoplasmas based on the whole genomic information. **J. Mol. Evol.** 65, 249-258.
44. Oshima, K., Kakizawa, S., Arashida, R., Ishii, Y., Hoshi, A., Hayashi, Y., Kagiwada, S. & Namba, S. (2007). Presence of two glycolytic gene clusters in a severe pathogenic line of *Candidatus* Phytoplasma asteris. **Mol. Plant Pathol.** 8, 481-489.
45. Kakizawa, S., Oshima, K., Jung, H.Y., Suzuki, S., Nishigawa, H., Arashida, R., Miyata, S., Ugaki, M., Kishino, H. & Namba, S. (2006). Positive selection acting on a surface membrane protein of plant-pathogenic bacteria, phytoplasma. **J. Bacteriol.** 188, 3424-3428.

46. Suzuki, S., Oshima, K., Kakizawa, S., Arashida, R., Jung, H.Y., Yamaji, Y., Nishigawa, H., Ugaki, M. & Namba, S. (2006). Interaction between the membrane protein of a pathogen and insect microfilament complex determines insect-vector specificity. **Proc. Natl. Acad. Sci. U. S. A.** 103, 4252-4257.
47. Kakizawa, S., Oshima, K. & Namba, S. (2006). Diversity and functional importance of phytoplasma membrane proteins. **Trends Microbiol.** 14, 254-256.
48. Wei, W., Kakizawa, S., Jung, H.Y., Suzuki, S., Tanaka, M., Nishigawa, H., Miyata, S., Oshima, K., Ugaki, M., Hibi, T. & Namba, S. (2004). An antibody against the SecA membrane protein of one phytoplasma reacts with those of phylogenetically different phytoplasmas. **Phytopathology** 94, 683-686.
49. Wei, W., Kakizawa, S., Suzuki, S., Jung, H.Y., Nishigawa, H., Miyata, S., Oshima, K., Ugaki, M., Hibi, T. & Namba, S. (2004). In planta dynamic analysis of onion yellows phytoplasma using localized inoculation by insect transmission. **Phytopathology** 94, 244-250.
50. Kakizawa, S., Oshima, K., Nishigawa, H., Jung, H.Y., Wei, W., Suzuki, S., Tanaka, M., Miyata, S., Ugaki, M. & Namba, S. (2004). Secretion of immunodominant membrane protein from onion yellows phytoplasma through the Sec protein-translocation system in *Escherichia coli*. **Microbiology-(UK)** 150, 135-142.
51. Oshima, K., Kakizawa, S., Nishigawa, H., Jung, H.Y., Wei, W., Suzuki, S., Arashida, R., Nakata, D., Miyata, S., Ugaki, M. & Namba, S. (2004). Reductive evolution suggested from the complete genome sequence of a plant-pathogenic phytoplasma. **Nature Genet.** 36, 27-29.
52. Jung, H.Y., Sawayanagi, T., Wongkaew, P., Kakizawa, S., Nishigawa, H., Wei, W., Oshima, K., Miyata, S., Ugaki, M., Hibi, T. & Namba, S. (2003). *Candidatus* Phytoplasma oryzae, a novel phytoplasma taxon associated with rice yellow dwarf disease. **Int. J. Syst. Evol. Microbiol.** 53, 1925-1929.
53. Miyata, S., Oshima, K., Kakizawa, S., Nishigawa, H., Jung, H.Y., Kuboyama, T., Ugaki, M. & Namba, S. (2003). Two different thymidylate kinase gene homologues, including one that has catalytic activity, are encoded in the onion yellows phytoplasma genome. **Microbiology-(UK)** 149, 2243-2250.
54. Jung, H.Y., Sawayanagi, T., Kakizawa, S., Nishigawa, H., Wei, W., Oshima, K., Miyata, S., Ugaki, M., Hibi, T. & Namba, S. (2003). *Candidatus* Phytoplasma ziziphi, a novel phytoplasma taxon associated with jujube witches'-broom disease. **Int. J. Syst. Evol. Microbiol.** 53, 1037-1041.
55. Jung, H.Y., Miyata, S., Oshima, K., Kakizawa, S., Nishigawa, H., Wei, W., Suzuki, S., Ugaki, M., Hibi, T. & Namba, S. (2003). First complete nucleotide sequence and

heterologous gene organization of the two rRNA operons in the phytoplasma genome. **DNA Cell Biol.** 22, 209-215.

56. Nishigawa, H., Oshima, K., Miyata, S., Ugaki, M. & Namba, S. (2003). Complete set of extrachromosomal DNAs from three pathogenic lines of onion yellows phytoplasma and use of PCR to differentiate each line. **J. Gen. Plant Pathol.** 69, 194-198.
57. Nishigawa, H., Oshima, K., Kakizawa, S., Jung, H.Y., Kuboyama, T., Miyata, S., Ugaki, M. & Namba, S. (2002). A plasmid from a non-insect-transmissible line of a phytoplasma lacks two open reading frames that exist in the plasmid from the wild-type line. **Gene** 298, 195-201.
58. Jung, H.Y., Sawayanagi, T., Kakizawa, S., Nishigawa, H., Miyata, S., Oshima, K., Ugaki, M., Lee, J.T., Hibi, T. & Namba, S. (2002). *Candidatus* Phytoplasma castaneae, a novel phytoplasma taxon associated with chestnut witches' broom disease. **Int. J. Syst. Evol. Microbiol.** 52, 1543-1549.
59. Miyata, S., Furuki, K., Oshima, K., Sawayanagi, T., Nishigawa, H., Kakizawa, S., Jung, H.Y., Ugaki, M. & Namba, S. (2002). Complete nucleotide sequence of the S10-spc operon of phytoplasma: Gene organization and genetic code resemble those of *Bacillus subtilis*. **DNA Cell Biol.** 21, 527-534.
60. Nishigawa, H., Oshima, K., Kakizawa, S., Jung, H., Kuboyama, T., Miyata, S., Ugaki, M. & Namba, S. (2002). Evidence of intermolecular recombination between extrachromosomal DNAs in phytoplasma: a trigger for the biological diversity of phytoplasma? **Microbiology-(UK)** 148, 1389-1396.
61. Oshima, K., Miyata, S., Sawayanagi, T., Kakizawa, S., Nishigawa, H., Jung, H.Y., Furuki, K., Yanazaki, M., Suzuki, S., Wei, W., Kuboyama, T., Ugaki, M. & Namba, S. (2002). Minimal set of metabolic pathways suggested from the genome of onion yellows phytoplasma. **J. Gen. Plant Pathol.** 68, 225-236.
62. Miyata, S., Furuki, K., Sawayanagi, T., Oshima, K., Kuboyama, T., Tsuchizaki, T., Ugaki, M. & Namba, S. (2002). The gene arrangement and sequence of str operon of phytoplasma resemble those of *Bacillus* more than those of *Mycoplasma*. **J. Gen. Plant Pathol.** 68, 62-67.
63. Oshima, K., Shiomi, T., Kuboyama, T., Sawayanagi, T., Nishigawa, H., Kakizawa, S., Miyata, S., Ugaki, M. & Namba, S. (2001). Isolation and characterization of derivative lines of the onion yellows phytoplasma that do not cause stunting or phloem hyperplasia. **Phytopathology** 91, 1024-1029.
64. Yamaji, Y., Lu, X.Y., Kagiwada, S., Oshima, K. & Namba, S. (2001). Molecular evidence that a lily-infecting strain of Tulip breaking virus from Japan is a strain of Lily mottle virus. **Eur. J. Plant Pathol.** 107, 833-837.

65. Kakizawa, S., Oshima, K., Kuboyama, T., Nishigawa, H., Jung, H.Y., Sawayanagi, T., Tsuchizaki, T., Miyata, S., Ugaki, M. & Namba, S. (2001). Cloning and expression analysis of phytoplasma protein translocation genes. **Mol. Plant-Microbe Interact.** 14, 1043-1050.
66. Oshima, K., Kakizawa, S., Nishigawa, H., Kuboyama, T., Miyata, S., Ugaki, M. & Namba, S. (2001). A plasmid of phytoplasma encodes a unique replication protein having both plasmid- and virus-like domains: Clue to viral ancestry or result of virus/plasmid recombination? **Virology** 285, 270-277.
67. Nishigawa, H., Miyata, S., Oshima, K., Sawayanagi, T., Komoto, A., Kuboyama, T., Matsuda, I., Tsuchizaki, T. & Namba, S. (2001). *In planta* expression of a protein encoded by the extrachromosomal DNA of a phytoplasma and related to geminivirus replication proteins. **Microbiology-(UK)** 147, 507-513.