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Background

1993 B.Agr Faculty of Agriculture, Shimane University
1995 M.Agr Graduate School of Agricultural Sciences, Shimane University.
1998 Ph.D. The United Graduate School of Agricultural Sciences, Tottori University

1998-2000 Special Postdoctoral Researchers in RIKEN
2000-2003 Assistant professor of Tokyo Gakugei University
2003-2013 Assistant professor of Biotechnology Research Center, The Univ. of Tokyo
2013-present Associate professor of Biotechnology Research Center, The Univ. of Tokyo

2010 Award for the Encouragement of Young Scientists, The Japan Society for Bioscience, Biotechnology, and Agrochemistry

Research

Plants biosynthesize many functionally unknown secondary metabolite, so-called Specialized metabolites, some of which are useful for human life, and often have an important roles in plant physiology as well. Of those metabolites, terpenoids are one of the largest groups of the metabolites in plants. My research interest is to disclose the mechanisms on a complicated nature of the regulation of terpenoids biosynthesis in plants, their infochemical properties as a communication tools among living organisms, and hopefully, the findings will help to improve plant functions for human benefits.

Key papers

[Publications & Citations \(Google Scholar\)](#)

1. Miyamoto K, Fujita M, Shenton MR, Akashi S, Sugawara C, Sakai A, Horie K, Hasegawa M, Kawaide H, Mitsuhashi W, Nojiri H, Yamane H, Kurata N, **Okada K***, Toyomasu T*. Evolutionary trajectory of phytoalexin biosynthetic gene clusters in rice. *Plant J*. 2016 May 1. doi: 10.1111/tj.13200.
2. **Okada K**, Kawaide H, Miyamoto K, Miyazaki S, Kainuma R, Kimura H, Fujiwara K, Natsume M, Nojiri H, Nakajima M, Yamane H, Hatano Y, Nozaki H, Hayashi K*. HpDTC1, a Stress-Inducible Bifunctional Diterpene Cyclase Involved in Momilactone Biosynthesis, Functions in Chemical Defence in the Moss *Hypnum plumaeforme*. *Sci Rep*. (2016) May 3;6:25316. doi: 10.1038/srep25316.
3. **Okada K**, Abe H, Arimura GI*. Jasmonates Induce Both Defense Responses and Communication in Monocotyledonous and Dicotyledonous Plants. *Plant Cell Physiol*. 2015 Jan;56(1):16-27. (2015)
4. Yamamura C, **Okada K**, Yamane H, Mori M*. DITERPENOID PHYTOALEXIN FACTOR, a bHLH Transcription Factor, Plays a Central Role in the Biosynthesis of Diterpenoid Phytoalexins in Rice. *Plant J*.84(6):1100-13. (2015)
5. Schmelz EA*, Huffaker A, Sims JW, Christensen SA, Lu X, **Okada K**, Peters RJ.:Biosynthesis, elicitation and roles of monocot terpenoid phytoalexins. *Plant J* 79(4):659-678. (2014)
6. Miyamoto K, Matsumoto T, Okada A, Komiyama K, Chujo T, Yoshikawa H, Nojiri H, Yamane H, **Okada K***.: Identification of target genes of the bZIP transcription factor OsTGAP1, whose overexpression causes elicitor-induced hyperaccumulation of diterpenoid phytoalexins in rice cells. *PLOS ONE* Aug 26;9(8):e105823 (2014)
7. Chujo T, Miyamoto K, Shimogawa T, Shimizu T, Otake Y, Yokotani N, Nishizawa Y, Shibuya N, Nojiri H, Yamane H, Minami E, **Okada K***.: OsWRKY28, a PAMP-responsive transrepressor, negatively regulates innate immune responses in rice against rice blast fungus. *Plant Molecular Biology*, 82(1-2):23-37. (2013)
8. Shimizu T, Lin F, Hasegawa M, **Okada K**, Nojiri H, Yamane H*.:Purification and identification of naringenin 7-O-methyltransferase, a key enzyme in the biosynthesis of the flavonoid phytoalexin sakuranetin in rice. *J Biol Chem.*, 287(23):19315-19325. (2012)
9. Miyamoto K, Shimizu T, Mochizuki S, Nishizawa Y, Minami E, Nojiri H, Yamane H, **Okada K***.: "Stress-induced expression of the transcription factor RERJ1 is tightly regulated in response to jasmonic acid accumulation in rice. *Protoplasma* 250(1):241-249. (2012)
10. Okada A, **Okada K***, Miyamoto K, Koga J, Shibuya N, Nojiri H, Yamane H.: OsTGAP1, a bZIP transcription factor, coordinately regulates the inductive production of diterpenoid phytoalexins in rice. *J Biol Chem*. 25;284(39):26510-2651 (2009)
11. **Okada K***, Kashihara H, Yamaguchi S, Kawaide H, Kamiya Y, Nojiri H, Yamane H.: Genetic evidence for the role of isopentenyl diphosphate isomerases in the mevalonate pathway and plant development in Arabidopsis. *Plant and Cell Physiology*, 49, 604-616 (2008).