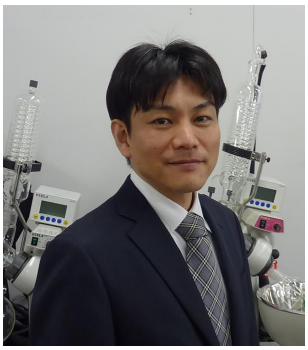
Curriculum Vitae 2025.1.1

Masahiro Okada, Ph.D., Professor (PI)



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Career

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|---|---|
| 1974.4 | Born in Aichi Prefecture, Japan |
| 1993.4-2000.3 | Bachelor's degree and Master's degree<br>Laboratory of Natural Products Chemistry (P.I. Prof. Shosuke Yamamura),<br>Department of Chemistry/Graduate School of Sciences, Keio University |
| 2000.4-2006.3 | Doctor's degree and Research Assistant<br>Laboratory of Bioactive Natural Product Chemistry (P.I. Prof. Youji Sakagami),<br>Graduate School of Bioagricultural Sciences, Nagoya University |
| 2006.4-2011.3 | Assistant Professor<br>Laboratory of Organic Chemistry (P.I. Prof. Minoru Ueda),<br>Graduate School of Sciences, Tohoku University |
| 2011.4-2015.3 | Lecturer (P.I.) and Associate Professor (P.I.)<br>College of Bioscience and Biotechnology, Chubu University |
| 2015.4-2017.5 | Associate Professor<br>Laboratory of Natural Products Chemistry (P.I. Prof. Ikuro Abe),<br>Graduate School of Pharmaceutical Sciences, The University of Tokyo |
| 2017.5-2018.3 | Environmental Science Center, The University of Tokyo |
| 2018.4-2024.3 | Professor (P.I.)<br>Laboratory of Bioactive Natural Products Chemistry,<br>Department of Material and Life Chemistry<br>Faculty of Engineering, Kanagawa University |
| 2024.4-present | Department of Biochemistry and Biotechnology<br>Faculty of Chemistry and Biochemistry (reorganization) |

Awards

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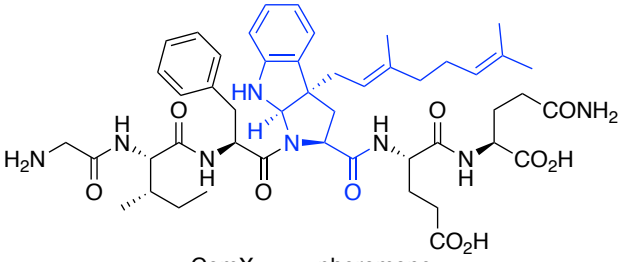
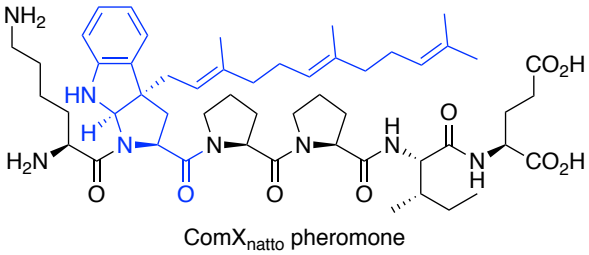
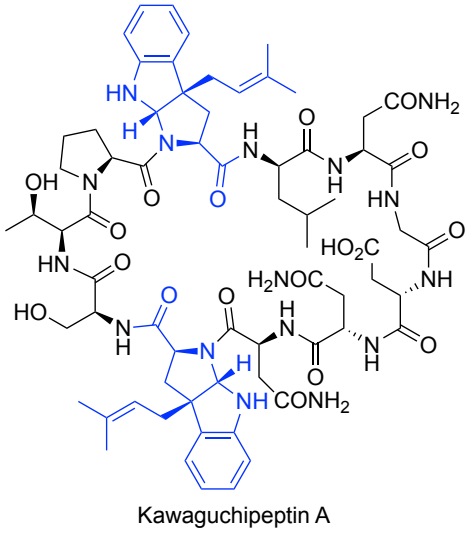
|---|---|
| 2005.10 | Young Scientist's Award in Symposium on the Chemistry of Natural Products<br>(Oral presentation at the 47th Symposium) |
| 2007.9 | Young Scientist's Research Award in Natural Product Chemistry |
| 2009.10 | Young Scientist's Award in Symposium on the Chemistry of Natural Products<br>(Poster presentation at the 51st Symposium) |
| 2009.10 | Tohoku branch, Japan Society for Bioscience, Biotechnology, and Agrochemistry Award<br>for Young Scientists |
| 2010.3 | Japan Society for Bioscience, Biotechnology, and Agrochemistry Award<br>for Young Scientists |

Research
Studies on "bioactive" natural products
1) Search, purification and structure determination
2) Chemical synthesis and structure-activity-relationship
3) Elucidation of biosynthesis and chemical biology

Research Highlights:
Studies of peptides post-translationally prenylated at the Tryptophan residue.
Proteins and peptides are biosynthesized through RNA translation, and RNA is produced through DNA transcription. The plain proteins and peptides are generally inactive and frequently chemically modified via post-translational modification. I have identified a new post-translation modification in a peptide pheromone, namely post-translational prenylation of the tryptophan residue. We are investigating the activation mechanism, biological events, and universality of the modification.




Publications list (Recent 5)
1) A. Kasahara, R. Yamada, T. Hyodo, K. Yamaguchi, Y. Otani, S. Sumimoto, M. Okada, and T. Ohwada. Generation and Application of All Possible Conformations of Cyclic Tryptophan within and beyond Post-translational Modification. *J. Org. Chem.* **2025**, *90(1)*, 623-635.
2) S. Inoue, D. T. Nguyen, K. Hamada, R. Okuma, C. Okada, M. Okada, I. Abe, T. Sengoku, Y. Goto, and H. Suga. De Novo Discovery of Pseudo-Natural Prenylated Macrocyclic Peptide Ligands, *Angew. Chem. Int. Ed.*, **2024**, *63(36)*, e202409973.
3) Y. Zhang, K. Hamada, D.T. Nguyen, S. Inoue, M. Satake, S. Kobayashi, C. Okada, K. Ogata, M. Okada, T. Sengoku, Y. Goto, and H. Suga. LimF is a Versatile Prenyltransferase for Histidine-C-Geranylation on Diverse Non-Natural Substrates. *Nat. Catal.* **2022**, *5*, 682-693.
4) K. Hirooka, S. Shioda, and M. Okada. Identification of Critical Residues for the Catalytic Activity of ComQ, a *Bacillus* Prenylation Enzyme for Quorum Sensing, by Using a Simple Bioassay System. *Biosci. Biotechnol. Biochem.* **2020**, *84(2)*, 347-357.
5) M. Okada and S. Sumimoto. *Bacillus* Quorum Sensing Pheromones: ComX and Phr. *Quorum Sensing: Microbial Rules of Life*, **2020**, *1374(11)*, 201-217.