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## 学歴・職歴

2006年3月	東京大学農学部卒業
2008年3月	東京大学大学院農学生命科学研究科応用生命工学専攻修士課程修了
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2011年3月	東京大学大学院農学生命科学研究科応用生命工学専攻博士課程修了 指導教官：堀之内末治教授、大西康夫教授
2011年4月	東京大学大学院薬学系研究科・助教
2014年4月	University of California at San Diego, Scripps Institute of Oceanography Prof. Bradley Moore・研修出向
2016年4月	東京大学大学院薬学系研究科・助教（復職）
2018年1月	東京大学大学院薬学系研究科・講師
2019年7月	東京大学大学院薬学系研究科・准教授
2020年11月	令和2年度 東京大学卓越研究員
2022年10月	理化学研究所 環境資源科学研究センター・チームリーダー（主任研究員）（現職）
2024年10月	JST 創発的研究支援事業（有田パネル）研究者（兼任）
2024年10月	JST 次世代のためのASPIRE 研究代表者（兼任）

## 受賞歴

2013年6月	日本薬学会 生薬天然物部会奨励賞
2013年9月	日本生薬学会 学術奨励賞
2019年9月	日本放線菌学会 浜田賞（研究奨励賞）
2020年3月	日本薬学会 奨励賞
2020年3月	Kenji Mori Medal, Isoprenoid Society
2020年8月	酵素工学研究会 酵素工学奨励賞
2021年4月	科学技術分野の文部科学大臣表彰 若手科学者賞
2023年4月	長瀬科学技術賞
2024年9月	日本生薬学会 学術貢献賞
2024年11月	住木・梅澤記念賞
2024年12月	日本微生物学連盟 野本賞

## 学術論文リスト

1. Zhu, Y.,<sup>†</sup> Mori, T.,<sup>†,\*</sup> Karasawa, M., Shirai, K., Chen, W., Terada, T., **Awakawa, T.**,<sup>\*</sup> Abe, I.<sup>\*</sup> "Structure-function analysis of carrier protein-dependent 2-sulfamoylacetyl transferase in the biosynthesis of altemicidin." *Nature Commun.* 15, in press (2024)  
**\*co-corresponding author**
2. **Awakawa, T.**,<sup>\*</sup> Mori, T., Barra, L., Ahmed, Y., Ushimaru, R., Gao, Y., Adachi, N., Senda, T., Terada, T.,<sup>\*</sup> Tantillo, D. J.,<sup>\*</sup> Abe, I.<sup>\*</sup> "The structural basis of pyridoxal 5'-phosphate dependent  $\beta$ -NAD alkylating enzyme." *Nature Catalysis* 7, 1099-1108 (2024)  
**\*co-corresponding author**
3. Zhu, Y., Mori, T.,<sup>\*</sup> Karasawa, M., Shirai, K., Chen, W., Terada, T., **Awakawa, T.**,<sup>\*</sup> Abe, I.<sup>\*</sup> "TBA." *Nature Commun.* 15, submitted for publication (2024)  
**\*co-corresponding author**
4. Meng, L.-H.,<sup>†</sup> **Awakawa, T.**,<sup>†,\*</sup> Li, X.-M., Quan, Z., Yang, S.-Q., Wang, B.-G., Abe, I.<sup>\*</sup> "Discovery of ( $\pm$ )-penindolones reveals an unusual indole ring cleavage pathway catalyzed by P450 monooxygenase." *Angew. Chem. Int. Ed.* 63, e202403963 (2024)  
**†co-first author, \*co-corresponding author**
5. Cao, Z.-Q., Wang, G.-Q., Luo, R., Gao, Y.-H., Lv, J.-M., Qin, S.-Y., Chen, G.-D., **Awakawa, T.**, Bao, X.-F., Mei, Q.-H., Yao, X.-S., Hu, D., Abe, I., Gao, H. "Biosynthesis of enfumafungin-type antibiotic reveals an unusual enzymatic fusion pattern and unprecedented C-C bond cleavage." *J. Am. Chem. Soc.* 146, 12723–12733 (2024)
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**†co-first author, \*co-corresponding author**
7. Tsunoda, T., Abuelizz, H.A., Samadi, A., Wong, C.P., **Awakawa, T.**, Brumsted, C.J., Abe, I., Mahmud, T. "Catalytic mechanism of nonglycosidic C-N bond formation by the pseudoglycosyltransferase enzyme VIdE." *ACS Catal.* 13, 13369-13382 (2023)
8. **Awakawa, T.**,<sup>\*</sup> Liu, W., Bai, T., Taniguchi, T., Abe, I.<sup>\*</sup> "Orthoester formation in fungal meroterpenoid austalide F biosynthesis. *Phil. Trans R. Soc. B.* 378, 20220037. (2023)  
**\*co-corresponding author**
9. Shin, Y. H., Im, J. H., Kang, I., Kim, E., Jang, S. C., Cho, E., Shin, D., Hwang, S., Du, Y. E., Huynh, T. H., Ko, K., Ko, Y.J., Nam, S. J., **Awakawa, T.**, Lee, J., Hong, S., Abe, I., Moore, B. S., Fenical, W., Yoon, Y. J., Cho, J. C., Lee, S. K., Oh, K. B., Oh, D. C. "Genomic and spectroscopic signature-based discovery of natural macrolactams." *J. Am. Chem. Soc.* 145, 1886-1896 (2022)
10. Tao, H., Ushimaru, R., **Awakawa, T.**, Mori, T., Uchiyama, M., Abe, I.<sup>\*</sup> "Stereoselectivity and substrate specificity of the Fe(II)/ $\alpha$ -ketoglutarate-dependent oxygenase TqaL."

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12. Zhou, L., Abe, I., **Awakawa, T.**\* “Biosynthesis of dihydroxyardeemin by heterologous expression.” *Tetrahedron* 127, 133095 (2022)
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14. Barra, L.,<sup>†</sup> **Awakawa, T.**,<sup>†,\*</sup> Shirai, K., Hu, Z., Bashiri, G., Abe, I.\* “β-NAD as a building block in natural product biosynthesis.” *Nature* 600, 754-758 (2021)  
<sup>†</sup>co-first author, \*co-corresponding author
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<sup>†</sup>co-first author, \*co-corresponding author
16. Bunno, T.,<sup>†</sup> **Awakawa, T.**,<sup>†,\*</sup> Mori, T., Abe, I.\* “Aziridine formation by a Fe(II)/α-ketoglutarate dependent oxygenase and 2-aminoisobutyrate biosynthesis in fungi.” *Angew. Chem. Int. Ed.* 60, 15827-15831 (2021)  
<sup>†</sup>co-first author, \*co-corresponding author
17. Mori, T.,<sup>†</sup> Kumano, T.,<sup>†</sup> He, H.,<sup>†</sup> Watanabe, S., Senda, M., Moriya, T., Adachi, N., Hori, S., Terashita, Y., Kawasaki, M., Hashimoto, Y., **Awakawa, T.**, Senda, T., Abe, I., Kobayashi, M. “C-Glycoside metabolism in the gut and in nature: Identification, characterization, structural analyses and distribution of C-C bond-cleaving enzymes.” *Nature Commun.* 12, Article number: 6294 (2021)
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19. Jiang, J., Li, X., Mori, T., **Awakawa, T.**,\* Abe, I.\* “Novel cyclohexyl meroterpenes produced by combinatorial biosynthesis.” *Chem. Pharm. Bull.* 69, 444-446 (2021)  
\*co-corresponding author
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**†co-first author, \*co-corresponding author**
23. Araki, Y.,<sup>†</sup> **Awakawa, T.**,<sup>†</sup> Matsuzaki, M.,<sup>†</sup> Cho, R., Matsuda, Y., Hoshino, S., Shinohara, Y., Yamamoto, M., Kido, Y., Inaoka, D. K., Nagamune, K., Ito, K., Abe, I., Kita, K. "Complete biosynthetic pathways of ascofuranone and ascochlorin in *Acremonium egyptiacum*: branched pathways encoded at two separate loci." **Proc. Natl. Acad. Sci. USA** 116, 8269-8274 (2019)  
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35. Nakashima, Y., Mori, T., Nakamura, H., **Awakawa, T.**, Hoshino, S., Senda, M., Senda, T., Abe, I. “Structure function and engineering of multifunctional non-heme iron dependent oxygenases in fungal meroterpenoid biosynthesis.” *Nature Commun.* 9, Article number: 104 (2018)

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combined-culture of *Actinosynnema mirum* NBRC 14064 and mycolic acid-containing bacterium.” **Chem. Pharm. Bull.** 66, 660-667 (2018)

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