

# 陶 慧 Hui Tao, Ph.D.

## Education

2013 – 2018

PhD in Biochemistry and Molecular Biology  
School of Pharmaceutical Sciences, Wuhan University  
Supervisor: Prof. Zixin Deng and Prof. Tiangang Liu

2009 – 2013

Bachelor of Science in Pharmaceutical Sciences  
School of Pharmaceutical Sciences, Wuhan University

## Research and Professional Experience

2018 – 2022

JSPS Postdoctoral Fellow, Postdoctoral Research Associate  
Graduate School of Pharmaceutical Sciences, The University of Tokyo  
Supervisor: Prof. Ikuro Abe

2017

Washington University in St. Louis, USA  
Supervisor: Prof. Yinjie Tang

2016

Chalmers University of Technology, Sweden  
Supervisor: Prof. Jensen Nielsen and Dr. Eduard Kerkhoven

## List of Publications

1. **Tao, H.**, Ushimaru, R., Awakawa, T., Mori, T., Uchiyama, M., Abe, I. "Stereoselectivity and substrate specificity of the Fe(II)/ $\alpha$ -ketoglutarate-dependent oxygenase TqaL." ***J. Am. Chem. Soc.*** 144, 21512-21520 (2022)
2. **Tao, H.**, Lauterbach, L., Bian, G., Chen, R., Hou, A., Mori, T., Cheng, S., Hu, B., Lu, L., Mu, X., Li, M., Adachi, N., Kawasaki, M., Moriya, T., Senda, T., Wang, X., Deng, Z., Abe, I., Dickschat, J. S., Liu, T. "Discovery of non-squalene triterpenes." ***Nature***, 606, 414-419 (2022)
3. **Tao, H.**, Mori, T., Chen, H., Lyu, S., Nonoyama, A., Lee, S., Abe, I. "Molecular insights into the unusually promiscuous and catalytically versatile Fe(II)/ $\alpha$ -ketoglutarate-dependent oxygenase SptF." ***Nature Commun.*** 13, Article number: 95 (2022)
4. **Tao, H.**, Mori, T., Wei, X., Matsuda, Y., Abe, I. "One polyketide synthase, two distinct products: trans-acting enzyme-controlled product divergence in calbistrin biosynthesis." ***Angew. Chem. Int. Ed.*** 60, 8551-8858 (2021)

5. **Tao, H.**, Abe, I.  
“Harnessing Fe(II)/ $\alpha$ -ketoglutarate-dependent oxygenases for structural diversification of fungal meroterpenoids.”  
***Curr. Opin. Biotechnol.***, 77, 102763 (2022)
6. **Tao, H.**, Abe, I.  
“Enzymology and biosynthesis of the orsellinic acid derived medicinal meroterpenoids.”  
***Curr. Opin. Biotechnol.*** 69, 52-59 (2021)
7. Mori, T., Yu, Z., **Tao, H.**, Abe, I.  
“Rational engineering of the non-heme iron- and 2-oxoglutarate-dependent oxygenase SptF.”  
***Org. Lett.*** 23, 1737-1741 (2022)
8. **Tao, H.**, Abe, I.  
“Oxidative modifications of free-standing amino acids by Fe(II)/ $\alpha$ KG-dependent oxygenases.”  
***Engineering Microbiology*** 3, 100062 (2023)
9. Bai, T., Matsuda, Y., **Tao, H.**, Mori, T., Zhang, Y., Abe, I.  
“Structural diversification of andiconin-derived natural products by  $\alpha$ -ketoglutarate-dependent dioxygenases.”  
***Org. Lett.*** 22, 4311-4315 (2020)
10. An, Z.,<sup>†</sup> **Tao, H.**,<sup>†</sup> Wang, Y., Xia, B., Zou, Y., Fu, S., Fang, F., Sun, X., Huang, R., Xia, Y., Deng, Z., Liu, R., Liu, T. (**†co-first author**)  
“Increasing the heterologous production of spinosad in *Streptomyces albus* J1074 by regulating biosynthesis of its polyketide skeleton.”  
***Synth. Syst. Biotechnol.*** 6, 292-301 (2021)
11. **Tao, H.**, Deng, Z., Liu, T.  
“Strategies for overproduction of potent insecticide spinosad in *Actinomycetes*.”  
***Biotechnology J.*** 14, Article number: e1700769 (2019)
12. Tan, G. Y., Deng, K., Liu, X., **Tao, H.**, Chang, Y., Chen, J., Chen, K., Sheng, Z., Deng, Z., Liu, T.  
“Heterologous biosynthesis of spinosad: an omics-guided large polyketide synthase gene cluster reconstitution in *Streptomyces*.”  
***ACS Synthetic Biology***, 6, 995-1005 (2017)
13. Bian, G., Yuan, Y., **Tao, H.**, Shi, X., Zhong, X., Han, Y., Fu, S., Fang, C., Deng, Z., Liu, T.  
“Production of taxadiene by engineering of mevalonate pathway in *Escherichia coli* and endophytic fungus *Alternaria alternata* TPF6.”  
***Biotechnology J.*** 12, Article number: 1600697 (2017)
14. **Tao, H.**, Zhang, Y., Cao, X., Deng, Z., Liu, T.  
“Absolute quantification of proteins in the fatty acid biosynthetic pathway using protein standard absolute quantification.”  
***Synth. Syst. Biotechnol.*** 1, 150-157 (2016)

15. **Tao, H.**, Guo, D., Zhang, Y., Deng, Z., Liu, T.  
“Metabolic engineering of microbes for branched-chain biodiesel production with low-temperature property.”  
***Biotechnology for Biofuels***, 8, Article number: 92 (2015)