

Qi Zhang

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Date of Birth: January, 28, 1981

Education

- BS in Chemistry (Advisor: Prof. Shirun Yan) 1999.9-2003.7
Department of Chemistry, Fudan University, Shanghai, China
Thesis title: Non-phosgene synthesis of phenyl carbamate
- Ph.D in Organic Chemistry (Thesis Advisor: Prof. Wen Liu) 2005.9-2010.7
Shanghai Institute of Organic Chemistry, Chinese Academy of Sciences, China
Thesis title: Functional characterization and mechanistic study of NosL, a radical S-adenosylmethionine enzyme involved in nosiheptide biosynthesis

Positions Since Final Degree

- Research Associate 2010.7-2011.1
Shanghai Institute of Organic Chemistry, Chinese Academy of Sciences
- Postdoctoral Research Fellow (Advisor: Prof. Wilfred A. van der Donk) 2011.2-2014.5
Department of Chemistry, University of Illinois at Urbana-Champaign
Project: Biosynthesis and Engineering of Lanthipeptides
- Professor, Department of Chemistry, Fudan University 2014.5-Present

Selected Honors and Awards

- 2013 1000 Talents Program for Young Scholars
- 2011 Reaxys PhD Prize Finalist (**Elsevier**)
- 2010 Excellent Student Awards, Chinese Academy of Sciences
- 1998 Chinese Chemistry Olympiad Competition for High School Students, the first in Sichuan province

Publications (chronological, * denotes corresponding author)

Independent Investigator (Fudan University)

26. Substrate-controlled stereochemistry in natural product biosynthesis

Wei Ding, Yongzhen Li, and **Qi Zhang***

ACS Chem. Biol. 2015, **DOI:** 10.1021/acscembio.5b00104

25. Evolution of threonine aldolases, a diverse family involved in the second pathway of glycine biosynthesis

Guangxiu Liu, Manxiao Zhang, Ximing Chen, Wei Zhang, Wei Ding*, **Qi Zhang***

J. Mol. Evol., 2015, **80**, 102-107

Postdoctoral Research (University of Illinois at Urbana-Champaign)

24. Expanded natural product diversity revealed by analysis of lanthipeptide-like gene clusters in Actinobacteria

Qi Zhang, James R. Doroghazi, Xiling Zhao, Mark C. Walker, and Wilfred A. van der Donk*

Appl. Environ. Microbiol., 2015, **DOI**: 10.1128/AEM.00635-15

23. Structure and mechanism of the tRNA-dependent lantibiotic dehydratase NisB

Manuel A. Ortega, Yue Hao, **Qi Zhang**, Mark C. Walker, Wilfred A. van der Donk* and Satish K. Nair*

Nature 2015, **517**, 509-12

22. High Divergence of the Precursor Peptides in Combinatorial Lanthipeptide Biosynthesis

Qi Zhang, Xiao Yang, Huan Wang, and Wilfred A. van der Donk*

ACS Chem. Biol. 2014, **9**, 2686-2694

21. Structural investigation of ribosomally synthesized natural products by hypothetical structure enumeration and evaluation using tandem MS

Qi Zhang, Manuel A. Ortega, Yanxiang Shi, Huan Wang, Joel O. Melby, Douglas A. Mitchell, and Wilfred A. van der Donk*

Proc. Natl. Acad. Sci. 2014, **111**, 12031-12036

20. Substrate specificity of the lanthipeptide peptidase ElxP and the oxidoreductase ElxO

Manuel A. Ortega, Juan E. Velásquez, Neha Garg, **Qi Zhang**, Rachel Joyce, Satish K Nair, and Wilfred A. van der Donk*.

ACS Chem Biol., 2014, **9**, 1718-1725

19. The glycosyltransferase involved in thurandacin biosynthesis catalyzes both O- and S-glycosylation

Huan Wang, Trent J Oman, Ran Zhang, Chantal V. Garcia De Gonzalo, **Qi Zhang**, and Wilfred A. van der Donk*

J. Am. Chem. Soc., 2014, **136**, 84-87

18. Insights into the evolution of lanthipeptide biosynthesis.

Yi Yu, **Qi Zhang**, and Wilfred A. van der Donk*

Protein Sci., 2013, **22**, 1478-1489

17. Evolution of lanthipeptide synthetases

Qi Zhang, Yi Yu, Juan E. Velásquez, and Wilfred A. van der Donk*

Proc. Natl. Acad. Sci., 2012, **109**, 18361-18366.

16. Catalytic promiscuity of a bacterial α -N-methyltransferase

Qi Zhang and Wilfred. A. van der Donk*

FEBS Lett., 2012, **586**, 3391-3397

15. Thioether Crosslinkages Created by a Radical SAM Enzyme

Qi Zhang* and Yi Yu*

ChemBioChem, 2012, **13**, 1097-1099.

14. Answers to the Carbon-Phosphorus Lyase Conundrum

Qi Zhang and Wilfred. A. van der Donk*

ChemBioChem, 2012, **13**, 627-629.

13. Radical-Mediated Enzymatic Methylation: A Tale of Two SAMs

Qi Zhang, Wilfred. A. van der Donk*, and Wen Liu*

Acc. Chem. Res., 2012, **45**, 555-64.

Graduate Research (Shanghai Institute of Organic Chemistry)

12. Iterative type I polyketide synthase-associated aromatic product formation and modification in bacteria.

Qi Zhang, Bo Pang, Wei Ding, and Wen Liu*

ACS Catal., 2013, **3**, 1439–1447

11. Biosynthesis of thiopeptide antibiotics and their pathway engineering

Qi Zhang and Wen Liu*

Nat. Prod. Rep., 2013, **30**, 218-226

10. Genetic Enhancement of the Supply of the Unusual Polyketide Extender Units Improves FK506 Production in *Streptomyces tsukubaensis* via Utilization of Two Distinct Site-Specific Recombination Systems.

Dandan Chen, **Qi Zhang**, Qinglin Zhang, Peilin Cen, Zhinan Xu*, and Wen Liu*

Appl. Environ. Microbiol., 2012, **78**, 5093-5103

9. Complex Biotransformations Catalyzed by Radical S-Adenosylmethionine Enzymes

Qi Zhang* and Wen Liu*

J. Biol. Chem., 2011, **286**, 30245-30252.

8. Characterization of NocL Involved in Thiopeptide Nocathiacin I biosynthesis: A [4Fe-4S] Cluster and the Catalysis of a Radical S-Adenosylmethionine Enzyme

Qi Zhang, Dandan Chen, Jin Lin, Rijng, Liao, Wei Tong, and Wen Liu*

J. Biol. Chem., 2011, **286**, 21287-21294.

7. Radical-Mediated Enzymatic Carbon Chain Fragmentation-Recombination.

Qi Zhang, Yuxue Li, Dandan Chen, Yi Yu, Lian Duan, Ben Shen, and Wen Liu*

Nat. Chem. Biol., 2011, **7**, 154-160. [This paper was highlighted in (1) *Science*. 2011, **331**, 1366; (2) *Nat. Chem. Biol.*, 2011, **7**, 133-134; (3) *Faculty 1000*, F1000.com/8771961; (4) *Nature China* 2011, doi: 10.1038/nchina.2011.9]

6. NosA Catalyzing Carboxyl-Terminal Amide Formation in Nosiheptide Maturation via an Enamine Dealkylation on the Serine-Extended Precursor Peptide

Yi Yu, Heng Guo, **Qi Zhang**, Lian Duan, Ying Ding, Rijing Liao, Chun Lei, Ben Shen, and Wen Liu*

J. Am. Chem. Soc., **2010**, 132, 16324–16326.

5. Biosynthesis of 3-Methoxy-5-Methyl Naphthoic Acid and Its Incorporation into the Antitumor Antibiotic Azinomycin B.

Wei Ding, Wei Deng, Mancheng Tang, **Qi Zhang**, Gongli Tang, Yurong Bi and Wen Liu*

Mol. Biosyst., **2010**, 6, 1071-1081.

4. Nosiheptide Biosynthesis Featuring a Unique Indole Side Ring Formation on the Characteristic Thiopeptide Framework.

Yi Yu, Lian Duan, **Qi Zhang**, Rijing Liao, Ying Ding, Haixue Pan, Evelyn Wendt-Pienkowski, Gongli Tang, Ben Shen and Wen Liu*

ACS Chem. Biol., **2009**, 4, 855–864.

3. Thiopeptide Biosynthesis Featuring Ribosomally Synthesized Precursor Peptides and Conserved Posttranslational Modifications.

Rijing Liao, Lian Duan, Chun Lei, Haixue Pan, Ying Ding, **Qi Zhang**, Daijie Chen, Ben Shen, Yi Yu*, and Wen Liu*

Chem. Biol., **2009**, 16, 141–147.

2. Characterization of the Azinomycin B Biosynthetic Gene Cluster Revealing a Different Iterative Type I Polyketide Synthase for Naphthoate Biosynthesis.

Qunfei Zhao, Qingli He, Wei Ding, Mancheng Tang, Qianjin Kang, Yi Yu, Wei Deng, **Qi Zhang**, Jie Fang, Gongli Tang, and Wen Liu*

Chem. Biol., **2008**, 15, 693-705.

1. Cloning and Characterization of the Tetrocarcin A Gene Cluster From *Micromonospora chalicea* NRRL 11289 Reveals a Highly Conserved Strategy for Tetrionate Biosynthesis in Spirotetronate Antibiotics.

Jie Fang, Yiping Zhang, Lijuan Huang, Xinying Jia, **Qi Zhang**, Xu Zhang, Gongli Tang and Wen Liu*

J. Bacteriology, **2008**, 190, 6014-6025.

Patent

1. Production and Application of Fluorinated Nosiheptide Analogs (Chinese Patent).

Wen Liu, **Qi Zhang**, Dandan Chen

2012, CN 201010519796.3 (application number: 201010519796.30)

Presentations

2. Wuhan University, School of Pharmaceutical Sciences, October 15, 2014

“Structures, biosynthesis, evolution and engineering of lanthipeptide natural products”

1. Session Chair in 3rd Annual Postdoctoral Research Symposium, Urbana, IL, January 25, 2013

“Posttranslational modifications in natural product biosynthesis”