蒋 明

微生物国家重点实验室，生命科学技术学院
上海交通大学，上海 200030，中国
jiangming9722@sjtu.edu.cn

2001 年获得复旦大学化学系学士学位，2004 年和 2008 年分别获得香港科技大学生物化学系硕士学位和化学系博士学位。2008 年至 2013 年分别在香港科技大学化学系，美国塔夫茨大学化学与生物工程系以及纽约州立大学水牛城分校化学与生物工程系从事博士后研究。2013 年回国任上海交通大学生命科学技术学院副研究员。主要从事酶学，复杂天然产物的合成生物学以及异源生物合成研究。在 PNAS、Angew Chem、JACS、Nature communication、Cell CB、JBC、Org. Lett.、AEM 等杂志发表四十多篇研究论文。

学习和工作经历

2013. 06~	上海交通大学生命学院，副研究员
2011. 09 ~ 2013. 05	State of New York University at Buffalo，化学与生物工程专业，博士后
2010. 09 ~ 2011. 08	Tufts University，化学工程专业，博士后
2008. 09 ~ 2010. 08	香港科技大学，化学专业，研究助理
2005. 01 ~ 2008. 08	香港科技大学，化学专业，获博士学位
2001. 08 ~ 2004. 08	香港科技大学，生物化学专业，获硕士学位
1997. 09 ~ 2001. 06	复旦大学, 化学专业，获学士学位

荣誉计划

2013 年 12 月，SMC 晨星青年学者奖励计划（B 类）。

2019-2020，唐氏·康奈尔-中国学者。

研究方向

1. 天然产物的合成生物学研究。
2. 天然产物的异源生物合成。
3. 通过代谢工程手段达到天然产物产量的提高和结构的改变。

教学经历

9/2014-6/2018，班主任，2014 级生物工程系本科生。

承担项目情况

1. 国家自然科学基金面上项目，32170076，II 型聚酮天然产物生物合成链释放机制的研究，2022-2025。
2. 国家自然科学基金面上项目，31870026，村山醌生物合成及其骨架重排机制的研究，2019-2022。
3. 科技部重点研发项目，2023-2027，纤维素制新型功能性聚糖的关键酶的挖掘、改造及催化机制。
4. 科技部重点研发项目，2019-2024，天然产物途径解析与元件表征。
5. 科技部重点研发项目，2020-2024，放线菌底盘与异源途径适配性优化。
6. 国家青年自然科学基金项目,21300033,抗肿瘤醌那霉素的生物合成机制解析及其改造,2014-2016。

7. 上海交通大学晨星奖励计划：抗肿瘤天然产物 lomaiviticin 中 TDP-pyrrolosamine 的生物合成机制研究,2014-2016。
8. 上海交通大学科技创新专项,聚酮类天然产物的生物合成机制研究，2016-2017。

已发表文章

1. Importance of aspartic acid side chain carboxylate-arginine interaction in substrate selection of arginine 2,3-aminomutase BlsG. Luo X, Wang X, Zhang L, Du A, Deng Z , **Jiang M***, He X*, *Protein Sci*. 2023, 32(3):e4584.
2. Unexpected Role of a short-chain dehydrogenase/reductase family protein in type II polyketide biosynthesis. Gao Y, Zhao Y, Zhou J, Yang M, Lin L, Wang W, Tao M, Deng Z, **Jiang M**, *Angew Chem Int Ed Engl*. 2022, 61(7): e202110445.
3. Efficient biosynthesis of nucleoside cytokinin angustmycin A containing an unusual sugar system. Yu L, Zhou W, She Y, Ma H, Cai YS, **Jiang M**, Deng Z, Price NPJ, Chen W. *Nat Commun*. 2021, 12(1):6633. doi: 10.1038/s41467-021-26928-y.
4. A [3Fe-4S] cluster and tRNA-dependent aminoacyltransferase BlsK in the biosynthesis of Blasticidin S. Wang X, Zhao Y, Gao Y, Luo X, Du A, Deng Z, Zabriskie TM, He X, **Jiang M.** *Proc Natl Acad Sci U S A*. 2021, 118(30): e2102318118.
5. Challenges of functional expression of complex polyketide biosynthetic gene clusters. Gao Y, Zhao Y, He X, Deng Z, **Jiang M**. *Curr Opin Biotechnol*. 2021, 69:103-111.
6. Offloading role of a discrete thioesterase in type II polyketide biosynthesis. Hua K, Liu X, Zhao Y, Gao Y, Pan L, Zhang H, Deng Z, **Jiang M**. *mBio*. 2020, 11(5):e01334-20.
7. Heterologous Biosynthesis of Type II Polyketide Products Using E. coli. Liu X, Hua K, Liu D, Wu ZL, Wang Y, Zhang H, Deng Z, Pfeifer BA, **Jiang M**. *ACS Chem Biol*. 2020 May 15;15(5):1177-1183.
8. Enhancing anthranilic acid biosynthesis using biosensor-assisted cell selection and in situ product removal. Li Z, Lu Y, Wang X, Vekaria A, **Jiang M**, Zhang H*. *Biochemical Engineering Journal*. 2020. 162: 107722.
9. Liu X, Liu D, Xu M, Tao M, Bai L, Deng Z, Pfeifer BA, **Jiang M***. Reconstitution of kinamycin biosynthesis within the heterologous host *streptomyces albus* J1074, *J Nat Prod.*, 2018, 81(1): 72~77.
10. Engineering the shikimate pathway for biosynthesis of molecules with pharmaceutical activities in E. coli. **Jiang M***, Zhang H, *Curr Opin Biotechnol*. 2016, 42:1-6.
11. Gao G, Liu X, Xu M, Wang Y, Zhang F, Xu L, Lv J, Long Q, Kang Q, Ou HY, Wang Y, Rohr J, Deng Z, **Jiang M***, Lin S*, Tao M*. Formation of an angular aromatic polyketide from a linear anthrene precursor via oxidative rearrangement. *Cell Chem Biol*. 2017, 24(7):881-891.
12. Lu C, Zhang X, **Jiang M**, Bai L. Enhanced salinomycin production by adjusting the supply of polyketide extender units in *Streptomyces albus*. *Metab Eng*. 2016, 35:129-137.
13. Liao L., Chen R., **Jiang M.**, Tian X, Liu H., Yu Y., Fan C., Chen B., Bioprospecting potential of halogenases from Arctic marine actinomycetes. *BMC Microbiol*. 2016, 16:34. doi: 10.
14. Yu G., Li L., Liu X., Liu G., Deng Z., Zabriskie M.T., **Jiang M.***, He X.*, The standalone aminopeptidase PepN catalyzes the maturation of blasticidin S from leucylblasticidin S. *Sci Rep.* 2015, 5:17641.
15. Jiang C, Qi Z, Kang Q, Liu J, **Jiang M**, Bai L. Formation of the Δ(18,19) double bond and bis(spiroacetal) in salinomycin is atypically catalyzed by SlnM, a methyltransferase-like enzyme. *Angew Chem Int Ed Engl*. 2015, 54(31):9097-100.
16. **Jiang M**; Zhang H.; Park SH.; Li Y; Pfeifer BA. Deoxysugar pathway interchange for erythromycin analogues heterologously produced through *Escherichia coli*. *Metab Eng*. 2013, 20:92-100.
17. **Jiang M**; Pfeifer BA. Metabolic and pathway engineering to influence native and altered erythromycin production through *E. coli*. *Metab Eng*. 2013, 19:42-49.
18. **Jiang M**, Fang L, Pfeifer BA. Improved heterologous erythromycin A production through expression

plasmid re-design. *Biotechnol Prog.* 2013, 29(4):862-869.

19. Chen CK, Jones CH, Mistriotis P, Yu Y, Ma X, Ravikrishnan A, **Jiang M**, Andreadis ST, Pfeifer BA, Cheng C. Poly(ethylene glycol)-block-cationic polylactide nanocomplexes of differing charge density for gene delivery. *Biomaterials*. 2013, 34(37):9688-9699.
20. Chen M, Ma X, Chen X, **Jiang M**, Song H, Guo Z. Identification of a hotdog fold thioesterase involved in the biosynthesis of menaquinone in Escherichia coli. *J Bacteriol*. 2013, 195(12):2768-2775.
21. Jones CH, Chen CK, **Jiang M**, Fang L, Cheng C, Pfeifer BA. Synthesis of cationic polylactides with tunable charge densities as nanocarriers for effective gene delivery. *Mol Pharm*. 2013, 10(3):1138-1145.
22. Sun Y, Song H, Li J, Li Y, **Jiang M**, Zhou J, Guo Z. Structural basis of the induced-fit mechanism of 1,4-dihydroxy-2-naphthoyl coenzyme A synthase from the crotonase fold superfamily. *PLoS One*. 2013, 8(4):e63095.
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25. **Jiang M.**; Stephanopoulos G.; Pfeifer B.A. Biosynthetic design and implementation towards *E. coli*-derived Taxol and other heterologous polyisoprene compounds. *Appl. Environ. Microb.*, 2012, 78(8):2497-2504.
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27. Sun Y, Song H, Li J, **Jiang M**, Li Y, Zhou J, Guo Z. Active site binding and catalytic role of bicarbonate in 1,4-dihydroxy-2-naphthoyl coenzyme A synthases from vitamin K biosynthetic pathways. Biochemistry. 2012, 51(22):4580-4589.
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