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个人简介

张立新教授现任华东理工大学生物反应器工程国家重点实验室主任，美国哈佛大学客座教授，Synth.Sys.Biotechnol. 学术刊物（中国合成生物学专业委员会唯一英文期刊）主编，Appl.Microbiol.Biotechnol.和 Frontiers in Bioengineering and Biotechnology 两个学术刊物的副主编，欧洲微生物联盟的第一位中国学术大使等，通过专利转化助力我国成为世界上阿维菌素的唯一生产国，由此被选为阿维菌素产学研国际联盟首届共同主席。曾经任国际化学生物学会 International Chemical Biology Society(ICBS) 主席，美国微生物学会中国学术大使，973项目“合成微生物体系的适配性研究”的首席科学家（建成了调控元件模块库、聚酮类和氨基糖苷类化合物模块库、模式微生物底盘库等，积累了元器件、模块与底盘适配规律，解析了青蒿素类过氧桥键的生物合成机制，显著提高了工业化阿维菌素的产量和效率。在Nature等杂志上发表200多篇论文，主编或参编8部学术专著（英文4部），他引超 6000次。今年发表在Nat.Biotechnol.的论文揭示了多源复合途径接力形成微生物聚酮类药物的机制。先后获得国家科技进步二等奖 1项和省部级科技进步一等奖 2项，国家杰出青年科学基金资助（终评优秀）。

研究方向

近年来的研究工作聚焦微生物基因组解析，通过构建高质量、高多样性的微生物基因组库，高效激活和挖掘其中的沉默“ 暗物质 ”，高效发现具有崭新结构的活性天然产物，并深入解析分子机制；更进一步利用“5M”策略（Mine，Model，Manipulate，Measure，Manufacture）实现智能绿色生物制造优化和放大技术体系，完成微生物天然产物药物的高效开发。

研究成果及主要发表文章

1. Weishan Wang, Shanshan Li, Zilong Li, Jingyu Zhang, Keqiang Fan, Gaoyi Tan, Guomin Ai, Sin Man Lam, Guanghou Shui, Zhiheng Yang, Hongzhong Lu, Pinjiao Jin, Yihong Li, Xiangyin Chen. Xuekui Xia, Xueting Liu, H. Kathleen Dannelly, Chen Yang, Yi Yang, Siliang Zhang, Gil Alterovitz, Wensheng Xiang*, Lixin Zhang*. 2020. Harnessing cellular triacylglycerol pool for titer improvement of polyketides in Streptomyces. Nat. Biotechnol. 38, 76-83. (IF=31.86)
2. Mindong Liang, Zilong Li, Weishan Wang, Jiakun Liu, Leshi Liu, Guoliang Zhu, Loganathan Karthik, Man Wang, Ke-Feng Wang, Zhong Wang, Jing Yu, Yuting Shuai, Jiaming Yu, Lu Zhang, Zhi-heng Yang, Chuan Li, Qian Zhang, Tong Shi, Liming Zhou, Feng Xie, Huanqin Dai, Xueting Liu, Jingyu Zhang, Guang Liu, Ying Zhuo, Buchang Zhang, Chenli Liu, Shanshan Li, Xuekui Xia, Yaojun Tong, Yanwen Liu, Gil Alterovitz, Gao-Yi Tan * & Li-Xin Zhang*. 2019. A CRISPR-Cas12a-derived biosensing platform for the highly sensitive detection of diverse small molecules. Nat commun, 10:3672 (IF=12.12)
3. Wupeng Yan, Heng Song, Fuhang Song, Yisong Guo, Cheng-Hsuan Wu, Ampon Sae Her, Yi Pu, Shu Wang, Nathchar Naowarojna, Andrew Weitz, Michael P. Hendrich, Catherine E. Costello, Zhang L*, Pinghua Liu*, and Yan Jessie Zhang*. 2015. Endoperoxide Formation Catalyzed by FtmOx1, an α-Ke-toglutarate-dependent Mononuclear Non-heme Iron Enzyme. Nature, 527, 539–543. (IF=43)
4. Wang Qian, Song Fuhang, Xiao Xue, Huang Pei, Li Li, Aaron Monte, Wael M. Abdel-Mageed. Wang Jian, Guo Hui, He Wenni, Xie Feng, Dai Huanqin, Liu Miaomiao, Chen Caixia, Xu Hao, Liu Mei, Andrew M. Piggott, Liu Xueting*, Robert J. Capon*, Zhang Lixin*. Abyssomicins from the South China Sea deep-sea sediment Verrucosispora sp.: Natural thioether Michael addition adducts as antitu-bercular prodrugs. Angew. Chem.-Int. Edit. 2013, 52, 1231-1234. (IF=13.560)
5. Bai C, Zhang Y, Zhao X, Hu Y, Xiang S, Miao J, Lou C*, Zhang L*. 2015. Exploiting a precise design of universal synthetic modular regulatory elements to unlock the microbial natural products in Streptomyces. Proc Natl Acad Sci US A. 112 (39), 12181-6. (IF=10.6)
6. Ashforth Elizabeth Jane, Fu Chengzhang, Liu Xiangyang, Dai Huanqin, Song Fuhang, Guo Hui, Zhang Lixin*. Bioprospecting for antituberculosis leads from microbial metabolites. Nat Prod Rep. 2010,27, 1709-1719. (IF=10)
7. Zhuo Ying, Zhang Wenquan, Chen Difei, Gao Hong, Tao Jun, LiuMei, Gou Zhongxuan, Zhou Xian-long, Ye Bangce, Zhang Qing, Zhang Siliang, Zhang Lixin*. Reversebiological engineering of hrdB to enhance the production of avermectins in an industrial strain of Streptomyces avermitilis, Proc. Natl. Acad. Sci. US A, 2010,107(25), 11250-11254. (IF=10)
8. Zhang Lixin*, Yan Kezhi, Zhang Yu et al. High-throughput synergy screening identifies microbial metabolites as combination agents for the treatment of fungal infections. Proc Natl Acad Sci U S A, 2007, 104(11), 4606-4611.(IF=10)
9. Gao Q, Tan GY, Xia X, Zhang L*. 2017. Learn from microbial intelligence for avermectins overpro-duction. Curr Opin Biotechnol. 48:251-257.(IF-9.6)
10. Cao Jiaqian, Yao Yongpeng, Fan Keqiang, Tan Gaoyi, Xiang Wensheng, Xia Xuekui, Li Shanshan*, Wang Weishan*, Zhang Lixin*. 2018, Harnessing a previously unidentified capability of bacterial allosteric transcription factors for sensing diverse small molecules in vitro. Sci Adv. 4(11), eaau4602. (IF=11.06)

Research results and main published thesis

11. Weishan Wang, Shanshan Li, Zilong Li, Jingyu Zhang, Keqiang Fan, Gaoyi Tan, Guomin Ai, Sin Man Lam, Guanghou Shui, Zhiheng Yang, Hongzhong Lu, Pinjiao Jin, Yihong Li, Xiangyin Chen, Xuekui Xia, Xueting Liu, H. Kathleen Dannelly, Chen Yang, Yi Yang, Siliang Zhang, Gil Alterovitz, Wensheng Xiang*, Lixin Zhang*. 2020. Harnessing cellular triacylglycerol pool for titer improvement of polyketides in Streptomyces. Nat. Biotechnol. 38, 76-83. (IF=31.86)
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15. Bai C, Zhang Y, Zhao X, Hu Y, Xiang S, Miao J, Lou C*, Zhang L*. 2015. Exploiting a precise design of universal synthetic modular regulatory elements to unlock the microbial natural products in Streptomyces. Proc Natl Acad Sci US A. 112 (39), 12181-6. (IF=10.6)
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