

Curriculum Vitae – Zaigao Tan

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EDUCATION

- 2004.9-2008.7** B.S., Shandong Agriculture University, Taian, CHINA.
2008.9-2011.7 M.S., Shandong University, Jinan, CHINA.
2011.9-2014.7 Ph.D., University of Chinese Academy of Sciences, Tianjin Institute of Industrial Biotechnology, Tianjin, CHINA.

PROFESSIONAL EXPERIENCE

- 2014.8-2016.9** Postdoctoral Research Associate, Department of Chemical and Biological Engineering, Iowa State University, Ames, IA. USA
2016.9-2018.8 Postdoctoral Research Associate, Department of Chemical and Biomolecular Engineering, Rice University, Houston, USA
2018.8-Present Postdoctoral Research Associate, Department of Biosciences, Rice University, Houston, USA

JOURNAL REVIEWERS

Editorial board member of *Journal of Industrial Microbiology & Biotechnology*
Reviewers for *Biotechnology for Biofuels*, *ACS synthetic biology*, *Biotechnology and Bioengineering*, *Journal of Industrial Microbiology & Biotechnology*, *Enzyme and Microbial Technology* etc.

SELECTED PUBLICATIONS

1. **Tan, Z**; Clomburg J, Cheong S, Qian S and Gonzalez R. 2020. A polyketoacyl-CoA thiolase-dependent pathway for the synthesis of polyketide backbones. *Nature Catalysis* 3, p593-603.
2. Clomburg J*, Qian S*, **Tan Z***, Cheong S* and Gonzalez R. 2019. The isoprenoid alcohol (IPA) pathway: a new paradigm for isoprenoid biosynthesis. *PNAS*. 116 (26) 12810-12815. (*Co-first author)
3. **Tan Z**, Khakbaz P, Chen Y, Lombardo J, Yoon J, Shanks J, Klauda J, Jarboe L. 2017. Engineering phospholipids distribution improves *Escherichia coli* solvents tolerance and production of biorenewables. *Metab Eng*. 44:1-12.
4. **Tan, Z**, Yoon J, Nielsen D, Shanks J, Jarboe L. 2016. Membrane engineering via trans unsaturated fatty acids production improves *Escherichia coli* robustness and production of biorenewables. *Metab Eng*, 35:105-113.
5. Zhu X*, **Tan Z***, Xu H, Chen J, Zhang X. 2014. Metabolic evolution of two reducing equivalent conserving pathways for high-yield succinate production in *Escherichia coli*. *Metab Eng* 24:87-96. (*Co-first author)
6. **Tan Z**, Yoon J*, Chowdhury A, Burdick K, Jarboe L, Maranas C. & Shanks J. 2018. Engineering of

- E. coli* inherent fatty acid biosynthesis capacity to increase octanoic acid production. **Biotechnol Biofuels**. 2018 11:87.
7. **Tan Z**, Chen J*, Zhu X and Zhang X. 2016. Systematic engineering pentose phosphate pathway of *Escherichia coli* for improving succinate production. **Biotechnol Biofuels**. 9:262.
 8. **Tan Z**, Clomburg J & Gonzalez R. 2018. Synthetic pathway for the production of olivetolic acid in *Escherichia coli*. **ACS Synthetic Biology**. 7(8), 1886-1896.
 9. **Tan Z**, Black W, Yoon J, Shanks J, & Jarboe L. 2017. Metabolic engineering of membrane proteins improves *Escherichia coli* membrane integrity and production of fatty acids. **Microbial Cell Factories**. 28;16(1):38.
 10. **Tan Z**, Zhu X, Chen J, Li Q, Zhang X. 2013. Activating phosphoenolpyruvate carboxylase and phosphoenolpyruvate carboxykinase in combination for improvement of succinate production. **Appl Environ Microbiol** 79:4838-4844.
 11. **Tan Z***, Li H*, Pan H, Zhou X, Liu X, Luo N, Hu W, Li Y. 2013. Characterization of four type IV pilin homologues in *Stigmatella aurantiaca* DSM17044 by heterologous expression in *Myxococcus xanthus*. **PLoS One** 8:e75105.
 12. Pan H, **Tan Z**, Liu H, Li Z, Zhang C, Li C, Li J, Li Y. 2010. Hdsp, a horizontally transferred gene required for social behavior and halotolerance in salt-tolerant *Myxococcus fulvus* HW-1. **ISME J** 4:1282-1289.
 13. Wang Y, Zhang W, Zhang Z, Li J, Li Z, **Tan Z**, Zhang T, Wu Z, Liu H, Li Y. 2013. Mechanisms involved in the functional divergence of duplicated GroEL chaperonins in *Myxococcus xanthus* DK1622. **PLoS Genet** 9:e1003306.
 14. Chen J, Zhu X, **Tan Z**, Xu H, Tang J, Xiao D, Zhang X. 2013. Activating C-dicarboxylate transporters DcuB and DcuC for improving succinate production. **Appl Microbiol Biotechnol** 98(5), 2197-2205.
 15. Tang J, Zhu X, Lu J, Liu P, Xu H, **Tan Z**, Zhang X. 2012. Recruiting alternative glucose utilization pathways for improving succinate production. **Appl Microbiol Biotechnol** 97(6), 2513-2520

CHAPTER

1. Liu, P., Zhu, X., **Tan, Z.**, Zhang, X., & Ma, Y. (2015). Construction of *Escherichia coli* cell factories for production of organic acids and alcohols. In **Bioreactor Engineering Research and Industrial Applications I** (pp. 107-140). Springer, Berlin, Heidelberg.

GRANTED PATENTS

1. Zhang X, **Tan Z**, Zhu X, Xu H. Construction of *E. coli* for succinate production. **Chinese Patent**. Granted No. CN103131663B.
2. Zhang X, Zhu X, Xu H, **Tan Z**. Recombinant for producing succinate acid and application thereof. **Chinese Patent**. Granted No. CN104178443B.
3. Zhang X, Zhu X, Xu H, **Tan Z**. Recombinant *Escherichia coli* for producing succinate acid and application thereof, 2018-6-26, **US Patent**. Granted No. US1006063B2.
4. Zhang X, Zhu X, Xu H, **Tan Z**. Recombinant *E. coli* and the use of recombinant *E. coli* to produce succinic acid, 2017-9-6, **Japanese Patent**. Granted No. JP6191 061B2.
5. Zhang X, Zhu X, Xu H, **Tan Z**. Recombinant *e. coli* for producing succinate and use thereof, 2019-1-22, **Canada Patent**. Granted No. CA2913197C
6. Gonzalez R, **Tan Z**, Clomburg J; Biosynthesis of olivetolic acid, 2018-3-29, WIPO,

WO2019190945A1.

FUNDINGS

1. 重塑大肠杆菌细胞膜磷脂系统以提高鲁棒性和产物合成能力，国家自然科学基金面上项目，主持，2021-2024。
2. 高值化合物生物合成体系的智能组装及高效运行，国家重点研发计划“合成生物学”重点专项，参与，2021-2025。

OTHER HONOURS

1. 上海市生物工程学会青年专业委员会委员（2019-）。