

# Yongjin Zhou

**Professor, Graduate Advisor**

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## **Research/Education Experience**

2021-, Chair professor. Division of Biotechnology, Dalian Institute of Chemical Physics, CAS, China

2018-, Professor. Division of Biotechnology, Dalian Institute of Chemical Physics, CAS, China

2017-2018, Assoc. Professor. Division of Biotechnology, Dalian Institute of Chemical Physics, CAS, China

2014-2016, Co-founder and Chief Scientist, Biopetrolia AB

2012-2016, Postdoc Fellow, Department of Chemical and Biological Engineering, Chalmers University of Technology, Sweden.

2008-2012, PhD, Division of Biotechnology, Dalian Institute of Chemical Physics, CAS, China

2006-2008, MS, Biochemical Engineering, Tianjin University, China.

2002-2006, BS, Food Science and Technology, Jiangnan University, China.

## **Awards and Honors**

- 2024 Outstanding Young Scholars from NSFC
- 2023 Agilent "ACT-UR" Award
- 2021 Zhang Dayu Chair professor
- 2019 The Best Potential Youth Scholar
- 2019 Excellent Youth Scholars from NSFC
- 2018 "Lun Shiyi" Distinguished Young Scientists
- 2018 National Talent Program for Young Scientists
- 2017 Talent Program of Chinese Academy of Sciences
- 2017 Young Scholar Award in the Biochemical Engineering of China
- 2017 Young Scholar Award in the Chemical Engineering from NSFC
- 2016 Young Scholar Award of International Metabolic Science Conference
- 2015 The first prize of Chinese Pharmaceutical Association
- 2013 Outstanding Youth Scholar of Chinese Industrial Biotechnology
- 2012 Outstanding Graduates of Chinese Academy of Sciences
- 2011 DICP-Corning Student Award
- 2011 Excellent Tri-A Student Scholarship
- 2010 Excellent Student Cadre Scholarship
- 2008 Yihai Kerry Scholarship
- 2006 Outstanding Graduate Student of Jiangnan University
- 2003/2005 National Scholarship
- 2003/2005 Excellent Tri-A Student Scholarship, Jiangnan University
- 2004 First Class Prize in China Undergraduate Contest in Mathematical Modeling
- 2004/2005 The major Award of Jiangnan University

**Publication (#equal contribution, \*Corresponding author)**

1. Chen R., Chen X., Chen Y., Yang J., Chen W.\*, **Zhou Y. J.\***, Zhang L.\*, *De novo* biosynthesis of plant lignans by synthetic yeast consortia. **Nat. Chem. Biol.**, 2025, Accepted
2. Yang S., Chen R.B., Cao X., Wang G.D., **Zhou Y.J.\***, *De novo* biosynthesis of the hops bioactive flavonoid xanthohumol in yeast, **Nat. Commun.**, 2024, 15, 253.
3. Gao L.H.#, Hou R.#, Cai P., Yao L., Wu X.Y., Li Y.X., Zhang L.H.\*, **Zhou Y.J.\***, Engineering Yeast Peroxisomes for  $\alpha$ -Bisabolene Production from Sole Methanol with the Aid of Proteomic Analysis, **JACS Au**, 2024, 7, 2474-2483.
4. Xie L.F., Yu W., Gao J.Q., Wang H.Y., **Zhou Y.J.\***, *Ogataea polymorpha* as a next-generation chassis for industrial biotechnology, **Trends Biotechnol.**, 2024, 42, 1363-1378.
5. Xie L.F., Gao J.Q., **Zhou Y.J.\***, Synthetic biology for Taxol biosynthesis and sustainable production, **Trends Biotechnol.**, 2024, 42, 1363-1378.
6. Gao L.H., Zhang K., Shen Y.W., Cai P.\*, **Zhou Y.J.\***, Engineering a versatile yeast platform for sesquiterpene production from glucose or methanol, **Biotechnol. J.**, 2024, 19, 2400261.
7. Li J.J., Gao J.Q., Ye M., Cai P., Yu W., Zhai X.X., **Zhou Y.J.\***, Engineering yeast for high-level production of  $\beta$ -farnesene from sole methanol, **Metab. Eng.**, 2024, 85, 194-200.
8. Wu X. Y., Ren Y. Y., Chen S. S., Cai P.\*, **Zhou Y. J.**, Production of L-lactic acid from methanol by engineered yeast *Pichia pastoris*. **Bioresour. Technol.**, 2024, 415, 131730.
9. Shen Y.W., Cai P., Gao L.H., Wu X.Y., Yao L., **Zhou Y.J.\***, Engineering high production of fatty alcohols from methanol by constructing coordinated dual biosynthetic pathways, **Bioresour. Technol.**, 2024, 412, 131396.
10. Yu W., Gao J.Q., **Zhou Y.J.\***, Bioconversion of one carbon feedstocks for producing organic acids, **Synth. Biol. J.**, 2024, 5(5), 1169-1188. (Cover story) (in Chinese)
11. Wang Q., Gao J.Q., **Zhou Y.J.\***, Metabolic engineering for the efficient co-utilization of glucose and xylose, **Chin. J. Biotechnol.**, 2024, 40(8), 2710-2730. (in Chinese)
12. Cai P., Wu X. Y., Xie L. F., Shen Y. W., Gao L. H., **Zhou Y. J.\***, Advances in microbial bioconversion of methanol. **SCIENTIA SINICA Chimica**, 2024, 54(11), 2199-2218. (in Chinese)
13. Ye M., Gao J.Q., Li J.J., Yu W., Bai F., **Zhou Y.J.\***, Promoter engineering enables precise metabolic regulation towards efficient  $\beta$ -elemene production in *Ogataea polymorpha*, **Synth. Syst. Biotechnol.**, 2024, 9, 234-241.
14. Gao J.Q.#, Yu W.#, Li Y.X., Jin M.J., Yao L., **Zhou Y.J.\***, Engineering co-utilization of glucose and xylose for chemical overproduction from lignocellulose, **Nat. Chem. Biol.**, 2023, 19, 1524-1531. (Cover)
15. Zhai X.X., Gao J.Q., Li Y.X., Grninger M., **Zhou Y.J.\***, Peroxisomal metabolic coupling improves fatty alcohol production from sole methanol in yeast, **Proc. Natl. Acad. Sci. USA**, 2023, 120(12), e2220816120.
16. Cao C.Y., Zhang H.Y., Cao X., Kong S.J., Zhu B.W., Lin X.P\*., **Zhou Y.J.\***, Construction and optimization of nonclassical Isoprenoid biosynthetic pathways in yeast peroxisomes for (+)-valencene production, 2023, **J. Agric. Food Chem.**, 2023, 71, 11124-11130.
17. Wu X.Y., Cai P., Yao L., **Zhou Y.J.\***, Genetic tools for metabolic engineering of *Pichia pastoris*, **Eng. Microbiol.**, 2023, 3, 100094.
18. Qiao S.J., Bai F., Cai P., **Zhou Y.J.**, Yao L.\*, An improved CRISPRi system in *Pichia pastoris*, **Synth. Syst. Biotechnol.**, 2023, 8, 479-485.

19. Yan C.X., Gao N., Cao X., Yao L., **Zhou Y.J.**, Gao J.Q.\* , Auxotrophs compromise cell growth and fatty acid production in *Saccharomyces cerevisiae*, *Biotechnol. J.*, 2023, 18(4), e2200510.
20. Cao C.Y., Gao J.Q., Zhu B.W., **Zhou Y.J.\***, Engineering yeast for bio-production of food ingredients, *Syst. Microbiol. Biomanuf.*, 2023, 3, 2-11.
21. Yao L., **Zhou Y.J.\***, Progress in microbial utilization of one-carbon feedstocks for biomanufacturing, *Chem. Ind. Eng. Prog.*, 2023, 42(1), 16-29. (in Chinese)
22. Wu X.Y., Cai P., Gao L.H., Li Y.X., Yao L., **Zhou Y.J.\***, Efficient bioproduction of 3-hydroxypropionic acid from methanol by a synthetic yeast cell factory, *ACS Sustainable Chem. Eng.*, 2023, 11, 6445-6453.
23. Ye M., Gao J.Q., **Zhou Y.J.\***, Global metabolic rewiring of the nonconventional yeast *Ogataea polymorpha* for biosynthesis of the sesquiterpenoid  $\beta$ -elemene, *Metab. Eng.*, 2023, 76, 225-231.
24. Cao X., Yu W., Chen Y., Yang S., Zhao Z.K., Nielsen J., Luan H.W., **Zhou Y.J.\***, Engineering yeast for high-level production of diterpenoid sclareol, *Metab. Eng.*, 2023, 75, 19-28.
25. Yu W., Gao J.Q., Yao L., **Zhou Y.J.\***, Bioconversion of methanol to 3 - hydroxypropionate by engineering *Ogataea polymorpha*, *Chinese J. Catal.*, 2023, 46, 84-90.
26. Gao J. Q., Li Y. X., Yu W., **Zhou Y. J.\***, Rescuing yeast from cell death enables overproduction of fatty acids from sole methanol, *Nat. Metab.*, 2022, 4, 932-943.
27. Chen R., Gao J., Yu W., Chen X., Zhai X., Chen Y., Zhang L.\* , **Zhou Y. J.\***, Engineering cofactor supply and recycling to drive phenolic acid biosynthesis in yeast. *Nat. Chem. Biol.*, 2022, 18(5), 520-529.
28. Cai P., Wu X.Y., Deng J., Gao L. H., Shen Y. W., Yao L., **Zhou Y. J.\***, Methanol biotransformation toward high-level production of fatty acid derivatives by engineering the industrial yeast *Pichia pastoris*, *Proc. Natl. Acad. Sci. USA*, 2022, 119(29), e2201711119.
29. Zhang K., Duan X. P., Cai P., Gao L. H., Wu X. Y., Yao L., **Zhou Y. J.\***, Fusing an exonuclease with Cas9 enhances homologous recombination in *Pichia pastoris*, *Microb. Cell Fact.*, 2022, 21, 182.
30. Hou R., Gao L.H., Liu J.H., Liang Z., **Zhou Y.J.\***, Zhang L.H.\* , Zhang Y.K., Comparative proteomics analysis of *Pichia pastoris* cultivating in glucose and methanol, *Synth. Syst. Biotechnol.*, 2022, 7, 862-868.
31. Cai P., Li Y.X., Zhai X.X., Yao L., Ma X.J., Jia L.Y., **Zhou Y. J.\***, Microbial synthesis of long-chain  $\alpha$ -alkenes from methanol by engineering *Pichia pastoris*. *Bioresour. Bioprocess.*, 2022, 9, 58. (Featured article)
32. Kong S. J., Yu W., Gao N., Zhai X.X., **Zhou Y. J.\***, Expanding the neutral sites for integrated gene expression in *Saccharomyces cerevisiae*, *FEMS Microbiol. Lett.*, 2022, 369, fnac081.
33. Li Y. X., Zhai X. X., Yu W., Feng D., Shah A. A., Gao J. Q.\* , **Zhou Y. J.\***, Production of free fatty acids from various carbon sources by *Ogataea polymorpha*, *Bioresour. Bioprocess.*, 2022, 9, 78.
34. Yu W., Cao X., Gao J. Q., **Zhou Y. J.\***, Overproduction of 3-hydroxypropionate in a super yeast chassis, *Bioresource Technol.*, 2022, 361, 127690.
35. Cao C. Y., Cao X., Yu W., Chen Y. X., Lin X. P., Zhu B. W.\* , **Zhou Y. J.\***, Global metabolic rewiring of yeast enables overproduction of sesquiterpene (+)-valencene, *J. Agric. Food Chem.*, 2022, 70(23), 7180-7187.
36. Yan C. X., Yu W., Yao L., Guo X. Y., **Zhou Y. J.**, Gao J. Q.\* , Expanding the promoter toolbox for metabolic engineering of methylotrophic yeasts, *Appl. Microbiol. Biotechnol.*, 2022, 106(9-10), 3449-3464.
37. Ji L. L., Ma X. J., Gao J. Q.\* , **Zhou Y. J.**, Evaluation of promoters from *Ogataea polymorpha*, *Chin. J. Bioprocess Eng.*, 2022, 20(1), 20-28. (in Chinese)

38. Feng D., Gao J. Q., Gong Z. W.\*, **Zhou Y. J.\***, Production of fatty acids by engineered *Ogataea polymorpha*, **Chin. J. Biotechnol.**, 2022, 38(2), 760-771. (in Chinese)
39. Yan C.X., Yu W., Zhai X.X., Yao L., Guo X.Y.\*, Gao J.Q.\*, **Zhou Y.J.**, Characterizing and engineering promoters for metabolic engineering of *Ogataea polymorpha*, **Synth. Syst. Biotechnol.**, 2022, 7, 498-505.
40. Cai P.#, Duan X. P.#, Wu X. Y., Gao L. H., Ye M., **Zhou Y.J.\***, Recombination machinery engineering facilitates metabolic engineering of the industrial yeast *Pichia pastoris*. **Nucleic Acids Res.**, 2021, 49(13), 7791–7805
41. Gao J. Q., Gao N., Zhai X.X., **Zhou Y. J.\***, Recombination machinery engineering for precise genome editing in methylotrophic yeast *Ogataea polymorpha*, **iScience**, 2021, 24(3), 102168
42. Zhai X., Ji L., Gao J., **Zhou Y.J.\***, Characterizing methanol metabolism related promoters for metabolic engineering of *Ogataea polymorpha*, **Appl. Microbiol. Biotechnol.**, 2021, 105, 8761–8769
43. Yu W., Gao J. Q., Zhai X. X., **Zhou Y. J.\***, Screening neutral sites for metabolic engineering of methylotrophic yeast *Ogataea polymorpha*, **Synth. Syst. Biotechnol.**, 2021, 6, 63-68.
44. Gao L., Cai P., **Zhou Y.J.\***, Advances in metabolic engineering of methylotrophic yeasts, **Chinese J. Biotechnol.**, 2021, 37(3), 966-979.
45. Ye M., Gao J. Q., **Zhou Y. J.\***, Engineering non-conventional yeast cell factory for the biosynthesis of natural products, **Biotechnol. Bulletin**, 2021, 37(8), 12-24.
46. Ren Y. Y. #, Liu S. S. #, Jin G. J., Yang X. B.\*, **Zhou Y. J.\***, Microbial production of limonene and its derivatives: Achievements and perspectives, **Biotechnol. Adv.**, 2020, 44, 107628.
47. Chen R., Yang S., Zhang L., **Zhou Y.J.\***, Advanced strategies for production of natural products in yeast. **iScience**, 2020, 23, 100879.
48. Gao J. Q., **Zhou Y. J.\***, Advances in methanol bio-transformation, **Synth. Biol. J.**, 2020, 1(2), 158-173.
49. Cao X., Yang S., Cao C., Zhou Y.J.\*, Harnessing sub-organelle metabolism for biosynthesis of isoprenoids in yeast, **Synth. Syst. Biotechnol.**, 2020, 5, 179-186.
50. Yang S., Cao X., Yu W., Li S., **Zhou Y.J.\***, Efficient targeted mutation of genomic essential genes in yeast *Saccharomyces cerevisiae*. **Appl. Microbiol. Biotechnol.**, 2020, 104, 3037-3047
51. Jiang Y., Li Z., Zheng S., Xu H., **Zhou Y.J.**, Gao Z., Meng C.\*, Li S.\*, Establishing an enzyme cascade for one-pot production of  $\alpha$ -olefins from low-cost triglycerides and oils without exogenous H<sub>2</sub>O<sub>2</sub> addition, **Biotechnol. Biofuels**, 2020, 13, 52
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54. Xu H., Liang W., Ning L., Jiang Y., Yang W., Wang C., Qi F., Ma L., Du L., Fourage L., **Zhou Y. J.**, Li S.\*, Directed evolution of P450 fatty acid decarboxylases via high-throughput screening towards improved catalytic activity. **ChemCatChem**, 2020, 12, 80-84
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57. Cai P., Gao J., **Zhou Y. J.\***, CRISPR-mediated genome editing in non-conventional yeasts for biotechnological applications. *Microb. Cell Fact.*, 2019, 18, 63.
58. Jiang Y., Li Z., Wang C., **Zhou Y. J.**, Xu H.,\*, Li S., Biochemical characterization of three new  $\alpha$ -olefin-producing P450 fatty acid decarboxylases with a halophilic property. *Biotechnol. Biofuels*, 2019, 12, 79
59. Gao J., **Zhou Y. J.\***, Repurposing peroxisomes for microbial synthesis for biomolecules. *Methods Enzymol.*, 2019, 617, 83-111.
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64. **Zhou Y. J.\***, Hu Y., Zhu Z., Siewers V., Nielsen J.\*, Engineering 1-alkene biosynthesis and secretion by dynamic regulation in yeast. *ACS Syn. Biol.*, 2018, 7(2), 584-590.
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### **Editorial Board member**

2023- Biotechnology Journal, Editor-in-Chief  
2021 BioDesign Research, Associate editor  
2021- Synthetic and Systems Biotechnology, Associate editor  
2019- FEMS Yeast Research, Editorial Board  
2020- Bioresources and Bioprocessing, Editorial Board  
2019- Environmental Science & Ecotechnology, Editorial Board  
2022- Chinese Journal of Biotechnology, Editorial Board  
2019- Chinese Journal of Bioprocess Engineering, Editorial Board  
2019-2023 Synthetic Biology Journal, Editorial Board

### **Thesis supervisor and examiner**

**Supervised:** 5 Postdoc; 8 PhD students; 5 Master students

**Currently:** 7 Postdoc, 10 PhD students; 8 Master students

**Examiner:** 20 PhD thesis, 6 master thesis

### **Scientific Journal Reviewer**

Nature Biotechnology, Nature Energy, Nature Chemical Biology, Nature Microbiology, Nature Metabolism, Nature Synthesis, Nature Food, Nature Communications, PNAS, Science Advances, JACS, Nucleic Acids Research, Biodesign Research, Trends in Biotechnology, Biotechnology Advances, Advanced Science, Current Opinion in Biotechnology, Current Opinion in Food Science, Critical Reviews in Biotechnology, Metabolic Engineering, Metabolic Engineering Communications, Green Chemistry, ACS Sustainable Chemistry & Engineering, ACS Synthetic Biology, Biotechnology and Bioengineering, Applied and Environmental Microbiology, Communications Biology, Biochemical Society Transactions, Essays in Biochemistry, Biotechnology for Biofuels, Biotechnology Journal, Biotechnology Progress, Microbial Cell Factories, Synthetic and Systems Biotechnology, Bioresources and Bioprocessing, BMC Genomics, Fungal Genetics and Biology, Applied Microbiology and Biotechnology, Journal of Biotechnology, FEMS Yeast Research, FEMS Microbiology Letters, Journal of Proteomics, Biotechnology and Applied Biochemistry, Journal of Agricultural and Food Chemistry, International Journal of Biological Macromolecule, Journal of Chemical Technology & Biotechnology, Biotechnology Letters, Science China Chemistry, Photochemistry, Engineering Biology, Physiologia Plantarum, Scientific Reports, Heliyon, Chinese Journal of Biotechnology, The Chinese Journal of Process Engineering, Chinese Journal of Bioprocess Engineering, Chemical Industry and Engineering Progress

## Conference Oral Presentations

1. *Methanol bioconversion toward carbon-neutrality biomanufacturing*. BESS Conference 2024 – CO<sub>2</sub> to X. November 21-22, 2024, Singapore.
2. *De Novo biosynthesis of antiviral lignans by a mutualistic yeast consortia*. International Conference on Metabolic and Protein Engineering for Biosynthesis. November 12-15, 2024, Frankfurt, Germany.
3. *Engineering yeast for methanol-based biomanufacturing*. 15th Globe Industrial Microbiology Congress & Metabolic Engineering Summit 2024. September 20-25, 2024, Shanghai, China.
4. *Engineering microbial cell factories for the production of chemicals and biomaterials*. Cell Symposium: Bio-Inspired and Bio-Integrated Materials for Emerging Technologies. December 1-3, 2023, Suzhou, China.
5. *Engineering methylotrophic yeasts as next-generation chassis for biomanufacturing chemicals from methanol*. Metaolic Engineering 15 Conference. June 12-15, 2023, Singapore.
6. *Sub-organelle engineering to improve the chemical biosynthesis in yeast cell factories*. 31<sup>st</sup> International Conference on Yeast Genetics and Molecular Biology. August 20-25, 2023, Florence, Italy.
7. *Methanol biotransformation for overproduction of fatty acids*. Metabolic Engineering and Green Biomanufacturing Forum, July 26-27, 2022, Beijing, China.
8. *Cofactor engineering drives phenolic acid biosynthesis in yeast cell factory*. Symposium on Biosynthesis of Plant Natural Products and Synthetic Biology for Their Production, May 19-20, 2021, Beijing, China.
9. *Engineering recombination machinery for precise genome editing in methylotrophic yeasts*. Asian Synthetic Biology Association 2019 (ASBA 2019), October 26-30, 2019, Chengdu, China.
10. *Methanol biotransformation for manufacturing fatty acid derivatives*. The International Conference on Green Biomanufacturing (ICGB2019), October 22-24, 2019, Beijing China.
11. *Precise Genome editing in Methylotrophic Yeast by Enhancing Homologous Recombination*. 27<sup>th</sup> International Conference on Yeast Genetics and Molecular Biology. August 18-22, 2019, Gothenburg, Sweden.
12. *Synthetic cell factories for over-production of fatty acids*. Advanced Biosynthesis and Biorefinery Workshop, March 15-16, 2019, Xi'an, China.
13. *Engineering yeast cell factories for over-production of fatty acids*. The 1st International Conference on Advanced Biomanufacturing (ICAB2019), January 12-14, 2019, Nanjing, China.
14. *Peroxisome engineering – a feasible approach for bio-manufacturing*. Advancing Synthetic Biology Mini-Symposium, April 18-19, 2018, Beijing, China.
15. *Engineering yeast fatty acid metabolism for production of hydrocarbons*. Chinese-Swedish Bilateral Synthetic Biology Workshop, April 10-12, 2018, Qingdao, China.
16. *Harnessing yeast peroxisomes for production of fatty acid-derived chemicals and biofuels* (Keynote and Chair), 7<sup>th</sup> International Forum on Bioprocessing. May 21-24, 2017, Wuxi, China.
17. *Engineering biosynthesis and secretion of 1-alkenes in yeast*. 9th Sino-US Joint Conference of Chemical Engineering. October 15-19, 2017, Beijing, China.
18. *Production of oleo-chemicals and advanced biofuels in yeast*. 27<sup>th</sup> International Conference on Yeast Genetics and Molecular Biology. September 6-12, 2015, Levico Terme, Trentino, Italy.

19. *Systematic rewiring of lipid metabolism for production of oleo-chemicals and advanced biofuels in yeast*. EMBL symposia 2015-Enabling Technologies for Eukaryotic Synthetic Biology. June 21-23, 2015, Heidelberg, Germany.
20. *Synthetic biology for microbial production of terpenoids*. Xiangshan Science conference. November 10-12, 2014, Beijing, China.
21. *Construction of E. coli NAD<sup>+</sup> auxotrophic strains and the biotechnological application thereof*. 1<sup>st</sup> Asian Congress on Biotechnology. May 11-15, 2011, Shanghai.