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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, 21, 1487-1496. (Cover article)
2. Wu Z.L.#, Gao J.Q.#, Gao N., Zhao Y.X., **Zhou Y.J.***, Engineering chronological lifespan toward a robust yeast cell factory, **Proc. Natl. Acad. Sci. USA**, 2025, 122 (46), e2515324122.
3. Yu W.#, Zhang C.Y.#, Li Y.X., Chen Q.A., Fei Q.*, Gao J.Q.*, Zhou Y.J.*, Methanol biotransformation for the production of biodegradable plastic monomer L-lactate in yeast, **Nat. Commun.**, 2025, 16, 10756.
4. Wang H.Y., Nielsen J., **Zhou Y.J.***, Lu H.Z.*, Yeast adapts to diverse ecological niches driven by genomics and metabolic reprogramming, **Proc. Natl. Acad. Sci. USA**, 2025, 122(32), e2502044122.
5. Xie L.F., Ye M., Zhang H.Y., Zhai X.X., Bai F., Gao J.Q.*, Zhou Y.J.*, Transforming peroxisomes into organelle factories for monoterpene production in yeast *Ogataea polymorpha*, **Engineering**, 2025, doi.org/10.1016/j.eng.2025.07.030.
6. Wang H.Y., Bai F., Lu H.Z., Zhou Y.J.*, Understanding methanol metabolism through systems biology: advances and future perspectives, **Curr. Opin. Biotechnol.**, 2025, 96, 103370.
7. Kong S.J., Yu W., Wu Z.L., Gao N., **Zhou Y.J.***, Engineering robust *Saccharomyces cerevisiae* cell factory for improving fatty alcohol biosynthesis, **Synth. Syst. Biotechnol.**, 2025, 10(4), 1414-1420.
8. Bai F., Cai P., Yao L., Shen Y.W., Li Y.X., **Zhou Y.J.***, Inducible regulating homologous recombination enables precise genome editing in *Pichia pastoris* without perturbing cellular fitness, **Trends Biotechnol.**, 2025, 43(6), 1385-1402.
9. Yu F.*, **Zhou Y.J.***, Sustainable production of porphyrins through synthetic biology, **Trends Biotechnol.**, 2025, 43(5), 996-999.
10. 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.**, 2025, 415, 131730.
11. Yang S., **Zhou Y.J.**, Gao J.Q.*, Stress-driven regulation of cellular robustness for improving terpenoid production in *Ogataea polymorpha*, **Bioresour. Technol.**, 2025, 439(2026), 133297.
12. Jia N., Ni X., Wang H.Y.*, **Zhou Y.J.**, Gao J.Q.*, Reconstructing an Inducible Homologous Recombination System in *Ogataea Polymorpha*, **Biotechnol. J.**, 2025, 20(6): e70040.
13. Chen S.S., Zhang M.Y., Wu X.Y., Bai F., Gao L.H., Shen Y.W., Dou S.H.*, Cai P.*, **Zhou Y.J.**, Promoter engineering for enhanced 3-hydroxypropionic acid production in *Pichia pastoris*, **Synth. Syst. Biotechnol.** 2025, 10, 916-924.
14. Ren Y.Y., Celińska E., Cai P.*, **Zhou Y.J.***, Combining Directed Enzyme Evolution with Metabolic Engineering to Develop Efficient Microbial Cell Factories. **Chem. & Bio. Engineering**, 2025, doi.org/10.1021/cbe.5c00002.
15. Zhang H.Y., Cai P., Guo J., Gao J.Q., Xie L.F., Su P., Zhai X.X., Jin B.L., Cui G.H.*, **Zhou Y.J.***, Huang L.Q.*, Engineering cellular dephosphorylation boosts (+)-borneol production in yeast, **Acta Pharmaceutica Sinica B.**, 2025, 15(2), 1171-1182.
16. Ni X., Li J.J., Yu W., Bai F., Zhao Z.K., Gao J.Q.*, Yang F.*, **Zhou Y.J.** High-level production of free fatty acids from lignocellulose hydrolysate by co-utilizing glucose and xylose in yeast, **Synth. Syst. Biotechnol.**, 2025,10(2), 401-409.
17. 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.
18. 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 α -Bisabolene Production from Sole Methanol with the Aid of Proteomic Analysis, *JACS Au*, 2024, 7, 2474-2483.
19. 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.
 20. Xie L.F., Gao J.Q., **Zhou Y.J.***, Synthetic biology for Taxol biosynthesis and sustainable production, *Trends Biotechnol.*, 2024, 42, 1363-1378.
 21. 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.
 22. 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 β -farnesene from sole methanol, *Metab. Eng.*, 2024, 85, 194-200.
 23. 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.
 24. 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.
 25. 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)
 26. 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)
 27. 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)
 28. Ye M., Gao J.Q., Li J.J., Yu W., Bai F., **Zhou Y.J.***, Promoter engineering enables precise metabolic regulation towards efficient β -elemene production in *Ogataea polymorpha*, *Synth. Syst. Biotechnol.*, 2024, 9, 234-241.
 29. 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)
 30. 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.
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 32. Wu X.Y., Cai P., Yao L., **Zhou Y.J.***, Genetic tools for metabolic engineering of *Pichia pastoris*, *Eng. Microbiol.*, 2023, 3, 100094.
 33. 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.
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 36. 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)
 37. 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-

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40. 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.
41. 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.
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45. 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.
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47. 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.
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55. 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

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58. 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.
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60. 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.
61. 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.
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66. 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 α -olefins from low-cost triglycerides and oils without exogenous H_2O_2 addition, **Biotechnol. Biofuels**, 2020, 13, 52
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Currently: 5 Postdoc, 12 PhD students; 7 Master students

Examiner: 20 PhD thesis, 6 master thesis

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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 – CO₂ 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*. 31st 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*. 27th 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), 7th 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*. 27th 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⁺ auxotrophic strains and the biotechnological application thereof*. 1st Asian Congress on Biotechnology. May 11-15, 2011, Shanghai.