Yi-nan Xue

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EDUCATION

Zhejiang University of Technology *Microbiology, Master of Science,* ***Sep 2022 - Jun 2025***

- Average Score: 91.56, Ranking: 2/227 (top 0.88%).

Zhejiang Normal University *Biological Science, Bachelor of Science,* ***Sep 2018 - Jun 2022***

- Average Score: 88.00, Ranking: 35/100.
- Core Modules: Molecular Biology (95/100), Genetics (93/100), Cell Biology(A) (92/100), Advanced Mathematics(C) (95/100).

RESEARCH EXPERIENCES

Constructing a highly efficient *Escherichia coli* cell factory producing L-2-aminobutyric acid (L-2-ABA) ***Nov 2023 - Present***
Part of master's thesis

- Designed an efficient multi-enzymatic module for L-2-ABA production and integrated it into an L-threonine-producing strain.
- Redirected and rebalanced the metabolic flux of the chassis strain to maximize the production of L-2-ABA.

Expanding metabolism for biosynthesis of non-canonical amino acids derived from L-threonine (TncAAs) ***Apr 2023 - Nov 2023***
Part of master's thesis

- Integrated a carbon chain elongation module into an L-2-ABA-producing strain.
- Achieved production of 1.6 g/L L-norleucine (one of the TncAAs) after a 48 h shake flask.

Rational modification of leucine dehydrogenase (leuDH) from *Thermoactinomyces. intermedius* ***Apr 2023 - Nov 2023***
Complete with other students, ready for submission

- Attained two leuDH mutants with enhanced catalytic activity by accelerating the dissociation rate of the NAD(H).

PUBLICATIONS

Cell factories for biosynthesis of D-glucaric acid (GA): a fusion of static and dynamic strategies [*Link*][*PDF*] *(IF: 4.00)*
Junping Zhou (supervisor), ***Yinan Xue***, *et al*, *Zhiqiang Liu*[*], *Yuguo Zheng*. ***World Journal of Microbiology & Biotechnology, 2024***

- Content: Summarized the shift from static strategies to dynamic regulations in reprogramming pathways for GA cell factories.
- Role: Structured, generated, and revised the whole manuscript.

Synthetic biology for *Monascus*: From strain breeding to industrial production [*Link*][*PDF*] *(IF: 3.20)*
Junping Zhou (supervisor), *Qilu Pan*, ***Yinan Xue***, *et al*, *Zhiqiang Liu*[*], *Yuguo Zheng*. ***Biotechnology Journal, 2024***

- Content: Reviewed the application of synthetic biology and fermentation control techniques in the production of *Monascus*.
- Role: Generated some of the illustrations.

Alleviating substrate inhibition of leucine dehydrogenase(LeuDH) by enhancing NADH dissociation efficiency
Junping Zhou (supervisor), ***Yinan Xue***, *et al*, *Zhiqiang Liu*[*], *Yuguo Zheng*. ***Ready to submitted to Biotechnology and Bioengineering***

- Content: Relieved substrate inhibition of LeuDH by accelerating the breakdown of the substrate-NADH-enzyme complex.
- Role: Participated in experiments, performed data analysis, structured, generated, and revised the whole manuscript.

Efficient multi-enzyme system constructions for icaritin production from naringenin and prenol utilization in *Escherichia coli*
Anyi Wu, *Junping Zhou (supervisor)*, ***Yinan Xue***, *et al*, *Zhiqiang Liu*[*], *Yuguo Zheng*. ***Under review at Food Chemistry***

- Content: Developed a novel multi-enzyme system in *Escherichia coli* for the first-time production of icaritin.
- Role: Contributed to data analysis, and drafting of the manuscript.

Efficient L-arginine(L-Arg) production in *Escherichia coli* through multiple strategies
Xin Gao, *Junping Zhou (supervisor)*, ***Yinan Xue***, *et al*, *Zhiqiang Liu*[*], *Yuguo Zheng*. ***Ready to submitted to Bioresource Technology***

- Content: Obtained an efficient L-Arg-producing *E. coli* via donor transport, flux optimization, and energy conservation.
- Role: Contributed to experiment, data analysis, and drafting of the manuscript.

Other publications

- A Novel Signature of 23 Immunity-Related Gene Pairs Is Prognostic of Cutaneous Melanoma, ***Frontiers in Immunology, 2020*** (*IF: 5.70*, ***2nd author***, *revised the draft, and generated some of the illustrations.*) [*Link*][*PDF*]
- Robotic and microrobotic tools for dental, ***Journal of Healthcare Engineering, 2022*** (***co-first author***, *wrote the original draft, and generated some of the illustrations*) [*Link*] [*PDF*]
- Artificial intelligence-assisted bioinformatics, microneedle, and diabetic wound healing: a "new deal" of an old drug, ***ACS Applied Materials & Interfaces, 2022*** (*IF: 8.30, cover paper*, ***9th author***, *participated in cell experiments*) [*Link*] [*PDF*]
- Metabolic engineering of *Escherichia coli* for production of D-panthenol from 3-aminopropanol and glucose, under review at ***Green Chemistry, 2024*** (*IF: 9.30*, ***4th author, supervisor as 1st author***, *revised the draft*)

INTERNSHIP EXPERIENCE

Zhejiang University ***Jan 2022 - Mar 2022***
Internship student, Micro/Nano Manipulation and Biomedical Robotics Laboratory

- Participated in laboratory project about diabetic wound healing, surveyed the thesis about dental robotics.

HONORS AND AWARDS

National Scholarship	***2024***
Zhejiang University of Technology Academic Innovation Scholarship	***2024***
Zhejiang University of Technology First Prize Scholarship	***2023, 2024***
Outstanding Postgraduate of Zhejiang University of Technology	***2023***
Outstanding Graduate of the College of Life Sciences at Zhejiang Normal University	***2022***

SKILLS

Wet lab skills: Molecular cloning, CRISPR-Cas9 editing, Enzyme purification & modification, Fermentation, HPLC maintenance, etc.
Software Skills: Snapgene, AutoDock, Pymol, ChimeraX, Illustrator, Origin, Latex, etc. **English Proficiency:** IELTS (6.5), CET-6 (548).