

# 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](#)<sup>\*</sup>, [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](#)<sup>\*</sup>, [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 by enhancing NADH dissociation efficiency

Junping Zhou (supervisor), **Yinan Xue**, et al, [Zhiqiang Liu](#)<sup>\*</sup>, [Yuguo Zheng](#). **Ready to submitted to Biotechnology and Bioengineering**

- Content: Developed a novel multi-enzyme system in *Escherichia coli* for the first-time production of icaritin.
- 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](#)<sup>\*</sup>, [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](#)<sup>\*</sup>, [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

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### 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

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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

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**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).