

## **MR. Zhe Yuan**

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### **Education Background**

09/2021-06/2023      **Master**      **New York University (NYU)**

Graduate School of Art and Science

**Major: Biology**

**Core Curriculum:** *Bio Core I, Bio Core II, Programming for Biologists, Frontier in Microbiology: Principle of genetic circuit design, Genes, Neurons & Behavior*

09/2015-01/2020      **Bachelor**      **Zhejiang University of Technology (ZJUT)**

College of Biotechnology and Bioengineering      **Major: Biotechnology**

**Core Curriculum:** *Biochemistry A I & II, Organic Chemistry B I & II, Microbiology A, Experiments in Microbiology, Microbial Engineering, Cell Biology, Genetics, Virology, Molecular Biology, Genome and Proteomics, Biostatistics, Bioinformatics, Microbial Pharmaceuticals*

**Honor:** The Third Prize of **ZJUT** 2017 “Canal Cup” College Students Extracurricular Academic Science and Technology Fund Project

### **Research Experience**

10/2021-04/2024      *Master Research Project & Full-time Lab Technician Work:* **Determining the role of teichoic acids in peptidoglycan biosynthesis**, in the Rojas Lab at NYU

- Worked as a junior research scientist and studied gram-positive bacteria cell wall material wall teichoic acid in *Bacillus Subtilis*. Investigating the role of teichoic acids in peptidoglycan synthesis.
- Built mutant strains and studied their growth rate, morphology, and cell wall homeostasis. Developed fluorescent lysis assay to study cell lysis trajectory.
- An NYU master’s research grant funded this project.

12/2018-06/2019      *Undergraduate Thesis Project:* **Studies on Physiological Functions of One Peptidoglycan Amidase in *Shewanella Oneidensis***, in Yin’s Lab at ZJUT

- Major question: What are the function and localization of one peptidoglycan amidase and its two activation factors in *Shewanella oneidensis*?
- Constructed mutant strain lacking the amidase and characterized morphology, growth, antibiotic tolerance, and other physiological phenotypes of these strains.
- Constructed mCherry fusion protein reporting system, using fluorescent microscopy to identify the localization of peptidoglycan amidase in bacterial cells.

01/2018-11/2018 2018 International Genetic Engineered Machine Competition (iGEM):

**Light-controlled Genetic Engineering Machine for Degrading Antibiotic Resistance Genes**, Group Project, Leader of the Wet Lab, ZJUT

- To address the antibiotic pollution problem. I led a team of undergraduate students and designed a novel genetically engineered machine that can degrade antibiotic resistance genes with a light-controlled CRISPR/Cas9 system.
- Awarded the “Gold Medal” in the 2018 iGEM Competition.
- Wiki Web: <http://2018.igem.org/Team:ZJUT-China>

06/2016-12/2017 Undergraduate Research: **Deletion of PBP1a/LpoA Complex Compromises Cell Envelope Integrity in *Shewanella Oneidensis***, in Yin’s Lab at ZJUT

- Major question: How does the deletion of PBP1a/LpoA affect cell envelope integrity?
- Compared the phenotypes of strains lacking PBP1a/LpoA or PBP1b/LpoB in *S. oneidensis*, including cell morphology, sensitivity to hypo-osmotic stress and sodium dodecyl sulfate (SDS), and outer membrane permeability, further found deletion of PBP1a/LpoA compromises cell envelope integrity.
- Awarded the First Prize in the 2018 China National Life Sciences Innovation & Entrepreneurship Competition.

### ***College Activities***

10/2015-09/2016 **School Astronomical Association, ZJUT, Vice Minister**

- Popularized astronomy knowledge to the school students and organized astronomy enthusiasts to observe the moon, Mars, Venus, and other celestial bodies.
- Recruited and trained new members. Editor of official social media accounts.

05/2017-09/2017 **Social Practice Activity - Sewage Treatment**

- Understood the river situation by analyzing the water samples in the lab and conducting a questionnaire survey among the surrounding residents; participated in river patrol and river protection works. Put forward the river management strategy.

### ***Publications***

Jianhua Yin, Jingxiao Cai, **Zhe Yuan**, Zhewei Wang, Haichun Gao, Juanping Qiu, Zhiliang Yu, Deletion of PBP1a/LpoA complex compromises cell envelope integrity in *Shewanella oneidensis*, FEMS Microbiology Letters, Volume 365, Issue 12, June 2018, fny128, <https://doi.org/10.1093/femsle/fny128>

### ***Abilities***

Professional Certificate: Basic Microbiology Experiments, PCR, Transformation, In Frame Gene Deletion, CRISPR-Cas9 Gene Editing, Fluorescent Microscopy

Fan: Photography