

# Zichen Hu

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Chu Kochen Honors College

## EDUCATION

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- Zhejiang University, Chu Kochen Honors Program** Hangzhou, China  
*Bachelor of Science* Sep. 2019 – Jun. 2023
- Top 3% in Genetics, Evolutionary Biology, Cell Biology, Molecular Biology and Engineering Biology
  - Top 10% in Molecular Pathology, Immunology, Overview of Life Science

## RESEARCH EXPERIENCE

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- Department of Ecology and Evolutionary Biology, University of Michigan** Ann Arbor, MI  
*Visiting Scholar* Oct. 2023 – present
- Aimed to measure and compare the fraction of various point mutations (e.g., beneficial, detrimental, neutral) in *S. cerevisiae* strains that are at different evolutionary stages, under the guidance of Prof. Jianzhi Zhang
  - Simulated the yeast molecular evolution mainly with the help of a high-throughput CRISPR (CRISPEY) and *en masse* competition-based fitness quantification
  - Designed a project on the functional divergence of the *S. cerevisiae* alcohol dehydrogenases (ADHs), mainly ADH1 and ADH2, based on the enzymatic activity analysis

- Life Sciences Institute, Zhejiang University** Hangzhou, China  
*Lab Research Assistant* May. 2021 – Sep. 2023
- Conducted research on Expression, Purification and Enzymatic activity analysis of *Homo sapiens* aldehyde dehydrogenases (ALDHs), under the guidance of Prof. Lei Li
  - Established the prokaryotic and eukaryotic expression system for ALDHs, with optimizing the expression conditions (e.g., MOI, infection duration, inducer amount)
  - Complete both MBP and strep tag-based purification streamline for recombinant ALDHs
  - Measured the enzymatic activities of ALDHs based on real-time change of NAD<sup>+</sup>
  - Conducted enzymatic activity analysis of multiple ALDHs (e.g., ALDH1A1, ALDH1A3, ALDH3A1), with various aldehydes (e.g., formaldehyde, acetaldehyde, 4-HNE, etc)

- Center for Evolutionary and Organismal Biology, Zhejiang University** Hangzhou, China  
*Summer Intern (Bioinformatics)* May. 2022 – Sep. 2022
- Conducted a project on post-insemination transitions in female *M. pharaonis* using scATAC-seq, under the guidance of Prof. Guojie Zhang
  - Authored a review connecting the female *M. pharaonis* transition to somatic cell differentiation, receiving recognition from peers
  - Complete the preliminary quality control of Next generation Sequencing (NGS) data in linux

- Utilized NGS data from single brain cells to reveal cis-regulatory element differences across castes and growth stages, finding that brains of ants undergo a significant transformation a few days after insemination

## **SOCIAL SERVICE**

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### **Social Welfare Institution**

Wenzhou, China

#### *Volunteer Team Leader*

Nov. 2019 - Dec. 2019

- Led a team of 8 students to contribute to community welfare, driven solely by altruism
- Donated food, clothing, and books to children with cerebral palsy, with an approximate value of \$1,500
- Actively supported the disabled children, safeguarding their social equity and unearthing their incredible potential

## **TECHNICAL SKILLS**

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**Experiments:** PCR, Plasmid Construction, Protein Creation, Protein Purification, DNA Electrophoresis, SDS-PAGE, Western Blot, Tissue Culture, Enzymatic Activity Analysis, Chemical Synthesis

**Programming Languages:** Python, R, MATLAB, C/C++, Shell

**Softwares:** BLAST, COBALT, GraphPad Prism, Photoshop, After Effects, Acrobat, Zotero, EndNote, Mendeley, GitHub, ChemSketch, TBtools, Benchling, BioRender

**Languages:** English (Proficient), Mandarin Chinese (Native)