# Yan Pan

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## Key

- Founder and Shareholder of a synbio startup (Chengdu Yuxiao Tech)
- Founder and Leader of the UESTC BioMedical Student Club
- iGEM 2023 Competitor and 2024/2025 Team Advisor
- BGI Genomics Group Guest Young Scientist Program Teammates
- National Undergraduate Training Program on Innovation and Entrepreneurship, Team Leader
- Background in the intersection of computational biology(Systems Bio.) and synthetic biology
- Experienced in pre-market toxicology assessment for synbio-derived food ingredients in China

## Education

**BS** **University of Electronic Science and Technology of China**, Clinical Medicine — Sept 2022 – May 2027

- **GPA:** 3.8/4.0
- **Coursework:** Syetems Biology, Diagnostics, Surgery, Molecular Biology, Biochemistry, Cell Biology, Machine Learning Theory

## Lab Experience

**Center of Aging Reasarch**, University of Electronic Science and Technology of China — Chengdu, Sichuan, March 2023 – now

- Developing a virtual screening framework for anti-aging small molecules based on computational biology and systems biology.

**Institute of Toxicology**, Beijing Center for Disease Control and Prevention — Beijing, Aug 2024 – Now

- Acquired *C. elegans*-based toxicity testing methods and contributed to the safety evaluation of synthetic biology-derived allulose prior to its market launch.

**GPCR Pharmacology Lab**, National Key Laboratory of Biotherapy, West China Hospital, Sichuan University — Chengdu, Sichuan, Dec 2024 – Oct 2025

- Combined with structural biology, deep learning models are used to perform antibody design.

**National Food Safety Risk Assessment Center**, Chinese Academy of Medical Sciences and Peking Union Medical College — Beijing/Remote, Aug 2024 – Jan 2025

- Conducted toxicity assessment of toxic substances that may exist in food, and made reference conclusions for food risk safety assessment.

**Protein Engineering Lab**, University of Electronic Science and Technology of China — Chengdu, Sichuan, June 2022 – March 2023

- Using molecular simulation methods, the enzyme activity of PET hydrolase was modified and upgraded.

## Publications

**Revealing 1, 3-diphenylpropane's coagulation toxicity via infomaxnet-based network toxicology and molecular simulations** — *Ecotoxicology and Environmental Safety*, Aug 2025

***Yan Pan***, Hongxia Cai,Yufeng Ran et al.

10.1016/j.ecoenv.2025.118834

**ElixirSeeker: A Machine Learning Framework Utilizing Attention-Driven Fusion of Molecular Fingerprints for the Discovery of Anti-Aging Compounds** — *Aging Cell*, May 2025

***Yan Pan***, Hongxia Cai,Fang Ye et al.

10.1101/2024.09.08.611839

**WormCNN-Assisted Establishment and Analysis of Glycation Stress Models in *C. elegans*: Insights into Disease and Healthy Aging** — *International Journal of Molecular Sciences*, Sep 2024

***Yan Pan***, Zhihang Huang, Hongxia Cai et al.

10.3390/ijms25179675

**L-Theanine Extends the Lifespan of Caenorhabditis elegans by Reducing the End Products of Advanced Glycosylation** — *Foods*, Jan 2025

Zhihang Huang, Haiming Jing, ***Yan Pan***, Hongxia Cai et al.

10.3390/foods14020221

**The joint toxicity effect of glyphosate and cadmium in a concentration-dependent manner on nematode *Caenorhabditis elegans*** — *Ecotoxicology and Environmental Safety*, Oct 2024

Zhihang Huang#, Anastasia Ngozi Ezemaduka#, Hongxia Cai#, ***Yan Pan#***, Yiwen Gong et al.

10.1016/j.ecoenv.2024.117081

**Reduction of DNA Topoisomerase Top2 reprograms the epigenetic landscape and extends health and life span across species** — *ELife/Aging Cell*, Nov 2024

Man Zhu, Meng Ma, Lunan Luo, Feiyang Li, Jiashun Zhang, ***Yan Pan***, Lu Yang et al.

10.1111/acel.70010

**Optimization of polyethylene terephthalate biodegradation using a self-assembled multi-enzyme cascade strategy** — *Journal of Hazardous Materials*, Oct 2024

Lizhu Aer, Qifa Jiang, Linling Zhong, Qiuyue Si, Xianghong Liu, ***Yan Pan***, Juan Feng et al.

10.1016/j.jhazmat.2024.134887

**Circular RNA CDR1as/ciRS-7– a novel biomarker in solid tumors** — *Frontiers in Oncology*, Nov 2024

Yun Zhang, Chanyu Xiong, Zhilin Jiang, Xiao Wang, Juanjuan Ji, ***Yan Pan***, Tianshu Yu et al.

10.3389/fonc.2024.1468363

## Conference Presentations

(Oral Presentation) **De novo design of Anti-Aging Peptides** — Oct 2025

IUTOX 17th International Congress of Toxicology

(Oral Presentation) **Deep Learning and Molecular Dynamics-Based Network Toxicology: Unraveling the molecular mechanism of styrene dimers affecting the coagulation system** — Oct 2024

The 7th Conference on Toxicity Testing Alternatives and Translational Toxicology

## Honors and Awards

**Silver Medal(Team Advisor)**, 2024 International Genetically Engineered Machine (iGEM) — Nov 2025

**Special Prize(Team Leader)**, "Challenge Cup" National College Student Series Science and Technology Academic/Entrepreneurship Plan Competition of UESTC — Apr 2025

**Gold Medal(Team Advisor)**, 2024 International Genetically Engineered Machine (iGEM) — Oct 2024

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| **Silver Medal(Team Leader)**, the 11th National Undergraduate Medical Innovation Competition and the "Belt and Road" International Competition | Sep 2024 |
| **Young Outstanding Paper Award**, Chinese Society of Toxicology | Aug 2024 |
| **Gold Medal(Team member)**, 2023 International Genetically Engineered Machine (iGEM) | Oct 2023 |

## About Me

My works focus on Using **machine learning** to computationally address **complex biological systems** such as aging.

My goal is to use **quantitative biology** to explore some of the deeper questions in science and philosophy. For instance, what is the ultimate mechanism of aging? Is the universe governed by strict laws, or is there an element of randomness—does “God roll the dice”? By applying rigorous, data-driven approaches to biological processes, I hope to gain insights that bridge the gap between scientific understanding and philosophical inquiry.