YUSHU WANG

Peking University, 5 Yiheyuan Road, Yanyuan Street, Haidian District, Beijing, China
Phone: +86-18907534701 | Email: 2000013531@stu.pku.edu.cn

EDUCATION BACKGROUND

Peking University — **Beijing, China**

B.S. in Environmental Science (College of Environmental Sciences and Engineering) — Sep 2020 – Jun 2024

B.S. in Biology (double degree) (School of Life Science) — Jun 2021 – Jun 2024

- Overall GPA: 3.78/4.00; Rank: 2/35

Peking University Senior Thesis Research — Sep 2023 – May 2024

Member of *Beyond Boundary Program* (BBP) in Peking University — Sep 2021 – Jun 2024

Participant Representing Peking University in *Climate Connect* (International Conference) — Oct 2021 – Feb 2022

RESEARCH EXPERIENCES

Study on the characteristics of microplastics (MPs) pollution in offshore sediments and its effects on microbial communities, *major participant*

Advisor: Donghui Wen (Professor, Peking University) — Jun 2021 – Oct 2022

Environmental properties of the three studied bays in the research

- Optimization and practice of MPs extraction from sediments: greatly reduced the detection limits of MPs' size
- Measurement of physical and chemical properties of seawater and sediment and assessment of bays pollution

Basic characteristics of microbial communities in the studied bays

- Diversity and species composition of the microbial communities: α diversity, β diversity
- Analysis of the mechanism of microbial community construction using neutral community model

Effects of MPs and other environmental factors on the microbial communities in the studied bays

- MPs, as an emerging pollutant and with huge pollution, had no significant effects on microbial communities

The discovery and study of the function of Ankyrin G (Ank G) in the pathogenesis of Alzheimer's Disease (AD) model mice, *participant*

Advisor: Yan Zhang (Professor, Peking University) — Jun 2023 – Jun 2024

Discovery and verification of down-regulation of Ank G expression in AD model mice

- Observation of fluorescent staining and analysis of spatial transcriptome sequencing in mouse brain sections
- Mouse brain proteins extraction and Western blot experiment
- *ANK3* gene (encoding Ank G) knockout and rescue

Effects of down-regulated Ank G expression on AD model mice

- Hippocampus atrophy observed by fluorescent staining in mouse brain sections
- Behavioral abnormalities observed by Morris water maze (MWM), Y maze, etc.

Further studies (ongoing and to be updated)

- Correlation between Ank G down-regulation and abnormal performance in AD model mice
- Relationship (signal pathways) between Ank G and neuronal death

TEACHING EXPERIENCES

Genetics Lab., *teaching assistant* Sep 2023 – Jan 2024

- In class: tutored the students to carry out experiments such as the separation of salivary gland chromosomes of. *D. melanogaster*, basic methods for fruit fly phenotype identification, etc.
- After class: conducted the culture and phenotype monitoring of experimental animals (*D. melanogaster*) required for class; prepared fruit fly culture medium and necessary experimental materials for class, etc.

Cell Biology Lab., *teaching assistant* Sep 2023 – Jan 2024

- In class: tutored the students about the basic norms in the cell biology laboratory and the experimental operation methods such as continuous cell culture, immunohistochemical staining, etc.
- After class: helped the instructors to prepared the necessary experimental materials for class and checked for cell culture and contamination conditions, etc.

SKILLS

Programming: R for data analysis and drawing; MATLAB for numerical calculation and simulation; C (basic)

Software: Adobe Illustrator, Adobe Photoshop (for scientific drawing); ImageJ, MEGA11; ENVI

Experiment skills:

Biology:

- Genetics: Drosophila phenotypic recognition, salivary gland chromosome production; Studying *D.melanogaster* with GAL4/UAS, Flp/*FRT* system
- Cell Biology: Fluorescence microscopy, HeLa cells/neonatal mice neurons primary/secondary culture, immune-fluorescence staining, FISH, cell transfection
- Microbiology: Basic operation (coating, striating, etc.), isolation of microorganisms, phylogenetic analysis
- Biochemistry and Molecular Biology: (qRT-)PCR, gel electrophoresis related, protein cloning and expression
- Bioinformatics: Enrichment analysis, RNA-seq, Genomic analysis, 3D genome, single cell sequencing
- Plant and Animal Biology: Basic anatomy; mice study (genotype identification, brain protein extraction, etc.; acquired Employees in Laboratory Animals Post Certificate, Beijing, China in 2023.9)

Chemistry: Basic quantitative analysis: titration, weighing, spectral analysis (UV, IR, fluorescence); Instrument analysis: AES, AAS, NMR, GC, HPLC, GC-MS, electrochemical analysis

Environmental Sciences: Atmospheric particle collection, Carbon/organic aerosol analysis; Analysis of physical and chemical properties of water (heavy metals, ammonia nitrogen, total phosphorus, etc.)

English: IELTS 7.0; TOEFL 101; GRE 328

AWARDS AND HONORS

2020 Excellent Award of Dean's Scholarship (Freshman) of College of Environmental Sciences and Engineering, Peking University; The Second Prize of Freshman Scholarship of Peking University

2021 Merit Student of Peking University; *Arowana* Scholarship

2022 Award for Academic Excellence of Peking University; The Third Prize of Peking University Scholarship

2023 Merit Student of Peking University; *Xiaomi* Scholarship

RESEARCH INTEREST

My research interest focuses on uncovering the mechanisms behind biological processes especially in diseases:

Cancer study: cancer cells metastasis, cell-to-cell communication and interaction in tumor microenvironment.

Neuroscience: molecular mechanisms, cellular characteristics, key molecules (e.g., immune protein, scaffold protein in cytoskeleton, etc.) and treatment target sites of neurodegenerative diseases such as Alzheimer's Disease (AD).

ACTIVITIES EXPERIENCES

"Beauty in Mind" College Student Volunteer Association (China), *vice president* Aug 2020 – Aug 2025

- went to high schools in various cities and counties in Hainan Province to share learning methods and experiences
- went to rural areas of Hainan Province, China to donate materials and share educational resources

Student Union, College of Environmental Sciences and Engineering, *secretary* Sep 2020 – Jul 2021

- participated in the organization of college recreational activities