

YINING (ELAINE) LIU

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EDUCATION

Case Western Reserve University School of Medicine, Cleveland, OH July 2022 - present
Doctor of Philosophy, Systems Biology and Bioinformatics
Principal Investigator: Dr. Jonathan Haines

Johns Hopkins University Bloomberg School of Public Health, Baltimore MD Aug 2020 – May 2022
Master of Science, Molecular Microbiology and Immunology
Certificate in Healthcare Epidemiology and Infection Prevention and Control
Principal Investigator: Dr. J. Marie Hardwick
Thesis: Investigating Fungal Cell-Death Resistance in Clinical Isolates of *Cryptococcus neoformans*

University of Wisconsin-Madison, Madison, WI Sep 2016 – May 2020
Bachelor of Science, Biochemistry, Neurobiology (Honors in Major)
Principal Investigator: Dr. Randal S. Tibbetts
Senior Honors Thesis: Investigating the Role of *Unc-5* Gene and Axon Guidance in Ubiquitin-associated Neurodegenerations

RESEARCH EXPERIENCE

Graduate Student Researcher Jan 2023 - present
Department of Population and Quantitative Health Sciences
Case Western Reserve University School of Medicine
Advisor: Dr. Jonathan Haines

- Studying the association between telomere length and cognitive impairment status in Alzheimer's Disease in Amish population

Graduate Student Research Rotations July 2022 – Dec 2022
Case Western Reserve School of Medicine & Cleveland Clinic Foundation, Cleveland, OH
Advisor: Dr. Jonathan Haines

- Performed Genome-wide Association Studies (GWAS) analysis on simulated HapMap Data, and comprehensively studied background of Alzheimer's Disease through literature research

Advisor: Dr. Helen Miranda

- Used iPSCs models to evaluate the neuromuscular junctions in different ALS models; Well-trained on iPSC culture, immunostaining as well as multi-electrode array recordings

Advisor: Dr. William Bush

- Analyzed the ancestry distribution of transcriptomic data of Alzheimer's patients

Advisor: Dr. Charis Eng

- Developed and grew PTEN/Autism iPSC organoids and analyzed single-cell RNA sequencing data derived from iPSC organoids

Graduate Student Researcher Oct 2020 – May 2022
W. Harry Feinstone Dep. of Molecular Microbiology and Immunology
Johns Hopkins Bloomberg School of Public Health, Baltimore, MD
Advisor: Dr. J. Marie Hardwick

- Developed and optimized various fungal cell death assays that can be applied to *Cryptococcus neoformans* for understanding the fungal cell death pathway

- Investigated the association between *in-vivo* cell-death resistance in and *in-vitro* virulence in *Cryptococcus neoformans* using mouse models

Undergraduate Student Researcher

Sep 2017 – May 2020

Wisconsin Institute for Medical Research, Department of Human Oncology

University of Wisconsin-Madison, Madison, WI

Advisor: Dr. Randal S. Tibbetts

- Conducted genetic modifiers screen of UBQLN2-associated ALS toxicity based on Drosophila model. Screened 194 Deficiency (Dfs) lines against UBQLN2^{P4X}. Identified 18 suppressors and 26 enhancers.
- Targeted the *Unc-5* Gene as a potential suppressor based on the modifier screens. Investigated the role of Unc-5 Gene and axon guidance in Ubiquilin-associated neurodegenerations.

Summer Research Intern

May 2019 – Aug 2019

Department of Microbiology

Chulalongkorn University, Bangkok, Thailand

Advisor: Dr. Naraporn Soomboonna

- Tested the effectiveness of the newly developed technique “Loop-mediated Isothermal Amplification – Most Probable Number (LAMP-MPN)” in detection of drinking water contaminations
- Researched on epidemiologic and demographic distribution of microbial waterborne pathogens

PROFESSIONAL DEVELOPMENT

Teaching Assistantships

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| ▪ PH260.852.01 Molecular Biology Literature, Johns Hopkins University | 1st Term 2021 |
| ▪ CHEM104 General Chemistry II Lab, UW-Madison | Spring 2020 |

UW Mobile Clinics & Health Care in Uganda

Summer 2018

Department of Biochemistry

University of Wisconsin-Madison

- Helped the Ugandan physicians and nurses run mobile clinics that bring health care to villages where residents are unable to get to the country's hospitals and clinics
- Assessed the health impacts from the aspects of agriculture, nutrition, health care, and sanitation
- Provided educational sessions of diabetes prevention, family planning and malnutrition prevention to the local community

Pre-health Experimental Program

Summer 2018

Duke-NUS Medical School, Singapore

- Interacted with local doctors and patients, and gained profound understanding of the value of patient care, medical research, and medical ethics

HONORS AND AWARDS

MMI Master's Tuition Scholarship, Johns Hopkins Bloomberg School of Public Health	2021
Trewartha Undergraduate Honors Research Grant, UW-Madison	2019
Undergraduate Scholarship for Summer Study, UW-Madison	2019
College of Agriculture and Life Sciences (CALS) Study Abroad Award, UW-Madison	2018
Dean's Lists, UW-Madison	2016-2020

PUBLICATION

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- [1] Zachary D Stolp, Madhura Kulkarni, **Yining Liu**, Chengzhang Zhu, Alizay Jalisi, Si Lin, Arturo Casadevall, Kyle W Cunningham, Fernando J Pineda, Xincheng Teng, J. Marie Hardwick (2022). Yeast cell death pathway requiring AP-3 vesicle trafficking leads to vacuole membrane permeabilization. *Cell Reports*. Vol 39, Issue 2
- [2] Sang Hwa Kim, Randal Tibbetts, Weiyan Jia, **Yining Liu** (2022). Transcriptomic analysis of UBQLN2-ALS Drosophila. *Dryad dataset*. DOI: 10.5061/DRYAD.TDZ08KQ39.
- [3] Sang Hwa Kim, Kye D. Nichols, Eric N. Anderson, **Yining Liu**, Nandini Ramesh, Weiyan Jia, Connor J. Kuerbis, Mark A. Scalf, Lloyd M. Smith, Udai Bhan Pandey, Randal S. Tibbetts (2023). Axon guidance genes modulate neurotoxicity of ALS-associated UBQLN2. *eLife* 12:e84382.

ABSTRACTS & POSTERS

- [1] Investigating neuropathologic mechanisms of Ubiquilin2. Sang Hwa Kim, **Yining Liu**, Nandini Ramesh, Udai Pandey, Randal Tibbetts. 2019 Gordon-Kenan Research Seminar-Amyotrophic Lateral Sclerosis (ALS) and Related Motor Neuron Diseases (GRS). West Dover, VT
- [2] Stress-induced cell death and virulence in fungal pathogen *Cryptococcus neoformans*. Madhura Kulkarni, **Yining Liu**, Quanxi Cheng, J. Marie Hardwick. International Cell Death Society & South African Chapter of ICDS. May 2023. Johannesburg, South Africa
- [3] Characterization of telomere length in Alzheimer's disease in the Midwestern Amish. **Yining Liu**, Audrey Lynn, ..., Jonathan L. Haines. 2023 American Society of Human Genetics Annual Meeting. Washington D.C.
- [4] Protective rare variants for cognitive preservation in the Midwestern Amish. Yeunjoo E. Song, Weihuan Wang, ..., **Yining Liu**, ..., Jonathan L. Haines. 2023 American Society of Human Genetics Annual Meeting. Washington D.C.
- [5] Alzheimer's disease genetic risk and cognitive "SuperAging" in the Midwestern Amish. Daniel Dorfsman, Michael B. Prough, ..., **Yining Liu**, ..., William K. Scott. 2023 American Society of Human Genetics Annual Meeting. Washington D.C.
- [6] Heritability estimates for plasma biomarkers of Alzheimer disease in the Amish population. Ping Wang, Audrey Lynn, ... , **Yining Liu**, ..., Jonathan L. Haines. 2023 American Society of Human Genetics Annual Meeting. Washington D.C.
- [7] Mosaic loss of chromosome Y and telomere length as risk factors for Alzheimer's Disease in the midwestern Amish. Yeunjoo Song*, **Yining Liu***, ..., Jonathan L. Haines. 2023 International Genetic Epidemiology Society Meeting. Sevierville, TN.
- [8] Heritability of plasma biomarkers and their associations with Alzheimer Disease in the old order Amish. Yeunjoo E. Song, Weihuan Wang, ..., **Yining Liu**, ..., Jonathan L. Haines. 2024 Alzheimer's & Parkinson's Diseases Conference. Libson, Portugal
- [9] Whole genome sequencing analysis to search for protective variants for Alzheimer's Disease in the Amish. Yeunjoo E. Song, Weihuan Wang, ..., **Yining Liu**, ..., Jonathan L. Haines. 2024 Alzheimer's & Parkinson's Diseases Conference. Libson, Portugal

MEMBERSHIPS

American Public Health Association (APHA)
American Society of Human Genetics (ASHG)

SKILLS

Language	Chinese Mandarin (Native), English (Fluent), Japanese (Beginner)
Quantitative skills	R, Linux commands, Python, Java, GraphPad, Microsoft Offices, Fuji ImageJ
Laboratory skills	Drosophila biology, Yeast biology, Confocal Microscopy, PCR, Western Blotting, Immunostaining, Cell Culture, iPSCs, Bioinformatics, Neuroscience, Statistical Genetics

VOLUNTEER AND COMMUNITY ACTIVITIES

CWRU School of Medicine Student Research Day Organizing Committee	July 2023 – present
• Co-chair of Fundraising committee	
CWRU Biomedical Science Student Organization	July 2023 – present
• Treasurer	
Johns Hopkins Hospital, MD, USA	June 2021 – Dec 2021
• Child Life Volunteer	
Johns Hopkins COVID-19 Contact Tracing, MD, USA	March 2021 – May 2021
• Call Agent at contact tracing center	
• Collected and managed data of COVID-19 cases on RedCap	
Wisconsin International Student Association, WI, USA	Sep 2017 – May 2020
• Event Manager (2017-2018), Financial Chair (2018- 2020)	
UW Health: University of Wisconsin Hospital, Madison, WI, USA	Sep 2018 – Jan 2019
• General assistant at the Medical/Surgical Short Stay Unit	
Cross-Cultural Solution, Kilimanjaro, Tanzania	July 2017
• HIV/AIDS prevention; Adolescence, Family and Reproductive Health; Women Empowerment	
Catholic Charities Adult Day Center, Madison, WI, USA	Feb 2017 – May 2017
• Assisted seniors with lunch and afternoon entertainments	