

Jiayi Hu

Phone: 6072803088 | Email: akarachelhu@gmail.com jh2792@cornell.edu

EDUCATION

Integrated Science, Yuanpei College, Peking University(PKU), China **9/2019-2023/7**

Courses: Quantitative Molecular Biology, Quantitative Cell Biology, Immunobiology, Physiology, Advanced neurobiology, Genetics, Inorganic Chemistry, Organic Chemistry, Chemical kinetics, Methods of Mathematical Physics, Quantum Mechanics and Spectroscopy

The High School Affiliated to Renmin University of China (RDFZ), China **9/2016-6/2019**

RESEARCH EXPERIENCE

Group Project: Meta-analysis of the relationship between psychological factors and PTSD incidence rate **11/2020-12/2020**

Team Member **PKU, China**

3rd year Research: Impact of NLRP3 phosphorylation on the priming and activating of NLRP3 **7/2021-2022/11**

Advisor. Prof.: Zhengfan Jiang **PKU, China**

- This research targets on the phosphorylation sites and regulatory proteins which directly regulate the activation of NLRP3. We test the function of these sites and proteins after stimulating with typical activation signals, hoping to find their interaction and new insight into the mechanism of activation of NLRP3.

Intern Research: **6/2022-10/2022**

Advisor. Prof.: Chun Han **Cornell University, Ithaca, NY**

- Establish Nmnat-LOF suppression assay
 - Determine the severity of LOF phenotypes by crossing the driver line to the Nmnat-RNAi line to see whether the animals are lethal.
 - Test phagocytosis-dependence of animal lethality by crossing phagocytosis-related protein LOF lines with cell type specific Nmnat KD lines.
- Establish an assay for engulfment-dependent dendrite degeneration with Caspase-LOV
 - Determine the condition of light-inducible dendrite degeneration caused by Caspase

activation.

- Test phagocytosis-dependence of dendrite degeneration by image for tdTom and MapHS in candidate gene KD or KO lines.
- Test involvement of candidate genes in EV formation and PS exposure using tissue-specific CRISPR/Cas9 system
 - Test the relationship between the secretion machinery and EV formation.
 - Test the relationship between ESCRT genes and NMJ morphology.
 - Using tissue-specific CRISPR/Cas9 to manipulate extracellular vesicle biogenesis at neuromuscular junctions.

Undergraduate Thesis : Impact of NLRP3 modifications on the NLRP3 activation

Advisor: Prof.: Zhengfan Jiang

12/2022-4/2023

PKU, China

- This research targets on the phosphorylation sites and regulatory proteins which directly regulate the activation of NLRP3. We test the function of these sites and proteins after stimulating with typical activation signals, hoping to find their interaction and new insight into the mechanism of activation of NLRP3.

Graduate Research :

1/2024-present

Advisor: Prof. Frank Pugh

Cornell University, Ithaca, NY

1. Develop an RNA version of ChIP-exo 6.1
2. Understand the dynamics of epigenomic architecture by in vitro and native ChIP-exo

AWARDS AND SCHOLARSHIP

Silver Prize, China High School Biology Olympiad **2018**

Scholarship for Internship abroad, Academy for Advanced Interdisciplinary Studies, Peking University **2022**

COURSES

BIOMG 7860 – Research Seminar Genetics & Development

Description: Each graduate student presents one seminar per year based on his or her thesis research. The student then meets with the thesis committee members for an evaluation of the presentation.

BIOMG 8369 – Foundational Skills for Grads

Description: The course will focus on helping students successfully navigate the graduate experience, covering diverse topics relevant to the broader experience and realities of graduate school. Occasional guest lectures and panels will be included.

BTRY 6010 – Statistical Methods I

Description: Develops and uses statistical methods to analyze data arising from a wide variety of applications. Topics include descriptive statistics, point and interval estimation, hypothesis testing, inference for a single population, comparisons between two populations, one- and two-way analysis of variance, comparisons among population means, analysis of categorical data, and correlation and regression analysis. Introduces interactive computing through statistical software.

BIOMG 7810 – Critical Thinking Genetics & Development

Description: This course will combine weekly didactic lectures with student presentations and critical analysis of key literature on topical issues in genetics, genomics, and development.

BIOMG 7860 – Research Seminar Genetics & Development

Description: Each graduate student presents one seminar per year based on his or her thesis research. The student then meets with the thesis committee members for an evaluation of the presentation.

PRESENTATION

Lab Rotation Presentation

02/2024

RNA version of ChIP-exo and applying TRIM-Away in mammalian cells