Hui Ji, Ph.D.

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EDUCATION

Ph.D. in Genetics

Dec. 2022

Cornell University, Ithaca, NY

B.S. (highest honor) in Biological Sciences (Zhiyuan College) Shanghai Jiao Tong University (SJTU), Shanghai, P.R. China July 2016

RESEARCH EXPERIENCES

Postdoctoral Fellow

Oct 2022 - Present

The Lab of Liqun Luo

Department of Biology, Stanford University, Stanford, CA

- Mechanisms of neural circuit assembly
 - Discovering repulsive ligand-receptor pairs instructing precise neurite patterning of genetically defined neurons in the *Drosophila* olfacotry system.
- Method developing
 - Developing biochemical methods to map cell-surface protein interactome in situ in the mouse brain.

Graduate Research Assistant

May 2017 - Sept. 2022

The Lab of Chun Han

Weill Institute for Cell and Molecular Biology, Cornell University, Ithaca, NY

- Roles and mechanisms of phagocytosis in neurodegeneration
 - Demonstrated that phosphatidylserine (PS) is an "eat-me" signal on neurons during neurite degeneration.
 - Discovered the role of phagocytosis in driving Wallerian degeneration of dendrites in *Drosophila*.
 - Revealed the role of a secreted protein "Orion" as a bridging molecule between PS and the engulfment receptor Draper during phagocytosis of neurons.
 - Examined the regulation and consequences of PS exposure on healthy sensory neurons of *Drosophila*.
- Tool developing
 - Developed LarvaSPA, a long-term time-lapse live imaging method for $Drosophila\ larvae.$
 - Contributed to the development of CRISPR-TRiM, a tissue-specific genome-editing tool in *Drosophila*.

 $Visiting\ Undergraduate$

Aug. 2015 – May 2016

The Lab of Chun Han

July 2014 - Sept. 2014

Weill Institute for Cell and Molecular Biology, Cornell University, Ithaca, NY

Undergraduate Research Assistant

Mar. 2014 - July 2015

The Lab of Shigang He

School of Biomedical Engineering, SJTU, Shanghai, China

PEER-REVIEWED PUBLICATIONS

See also my google scholar page.

• Ji, H., Han, C. (2024). Regulation of neuronal morphogenesis by engulfment. In Yaron, A. & Tran, T. (Eds.), Wiring the Nervous System: Mechanisms of

Axonal and Dendritic Remodelling in Health and Disease, River Publishers, pp 137-186 (Peer-reviewed book chapter)

- **Ji, H.**, Wang, B., Labib, D., Lei, J., Chen, X., Sapar, M. L., Boulanger, A., Dura, J., Han, C. (2023). The *Drosophila* chemokine-like Orion bridges phosphatidylserine and Draper in phagocytosis of neurons, *PNAS*, 120(24). p. e2303392120, doi:10.1073/pnas.2303392120
- Ji, H.*, Sapar, M. L.*, Sarkar, A., Wang, B., Han, C. (2022). Phagocytosis and self-destruction break down dendrites of *Drosophila* sensory neurons at distinct steps of Wallerian degeneration, *PNAS*, 119(4). pii: 2111818119. doi: 10.1073/pnas.2111818119. (* The authors have contributed equally to the work)
- Ji, H. & Han, C. (2020). LarvaSPA, A Method for Mounting *Drosophila* Larva for Long-Term Time-Lapse Imaging, *J Vis Exp*, (156). doi:10.3791/60792.
- Poe, A. R., Wang, B., Sapar, M. L., Ji, H., Li, K., Onabajo, T., . . . Han, C. (2019). Robust CRISPR/Cas9-Mediated Tissue-Specific Mutagenesis Reveals Gene Redundancy and Perdurance in *Drosophila*, Genetics, 211(2), 459-472.do i:10.1534/genetics.118.301736.
- Sapar, M. L.*, **Ji, H.***, Wang, B., Poe, A. R., Dubey, K., Ren, X., . . . Han, C. (2018). Phosphatidylserine Externalization Results from and Causes Neurite Degeneration in *Drosophila*, Cell Rep, 24(9),2273-2286.doi:10.1016/j.celrep.201 8.07.095. (* The authors have contributed equally to the work)

PRESENTATIONS

Oral

"Ten-m-capricious interaction mediates heterotypic dendrite segregation in the Drosophila olfactory circuit"

• Cold Spring Harbor meeting: Neurobiology of *Drosophila* Expected Oct. 2025

"Orion bridges phosphatidylserine and Draper in the phagocytosis of somatosensory neurons in Drosophila"

- Annual Drosophila Research Conference (Virtual)

 Apr. 2022
- Cold Spring Harbor meeting: Neurobiology of *Drosophila* (Virtual) Oct. 2021
- Weill Institute Science Round-Up

Aug. 2021

"A bridge to recognition: a secreted protein required for phagocytosis"

• Membrane Signaling Group, Cornell University, Ithaca, NY Jan. 2020

"Investigating the role of phosphatidylserine exposure in degenerating and healthy neurons"

• Membrane Signaling Group, Cornell University, Ithaca, NY Apr. 2019

"Dynamic phosphatidylserine exposure is linked to neurite degeneration in Drosophila"

- Superfly Group, Cornell University, Ithaca, NY
- $May\ 2018$
- Membrane Signaling Group, Cornell University, Ithaca, NY Oct. 2017

Poster

"Orion bridges phosphatidylserine and Draper in the phagocytosis of somatosensory neurons in Drosophila"

• Weill Institute Science Round-Up

Aug. 2021

"Phagocytosis drives NAD⁺ reduction-induced dendrite degeneration in Drosophila"

	• Cold Spring Harbor meeting: Neurodegenerative Diseases: Biology & Therapeutics (Virtual) Dec. 2020
	• Cold Spring Harbor meeting: Molecular Mechanisms of Neuronal Connectivity (Virtual) Oct. 2020
	"Contribution of phosphatidylserine exposure in engulfment of dendrite debris by phagocytes"
	• Flash talk, Keck Biomembrane Retreat, Ithaca, NY June 2019
	• Flash talk, Annual <i>Drosophila</i> Research Conference, Dallas, TX Mar. 2019
	"Dynamic phosphatidylserine exposure is linked to neurite degeneration in Drosophila" • Gordon Research Conference on Cell Biology of the Neuron (GRC), Waterville Valley, NH June 2018
	• Gordon Research Seminar on Cell Biology of the Neuron (GRS), Waterville Valley, NH June 2018
MENTORSHIP	Trained 26 students/postdocs on confocal microscopy July 2017 – Sept. 2022 Mentored two undergraduates on their honored thesis projects Mar. 2019 – May. 2021
SERVICE	GGD Climate Committee member, Cornell University Cell Biology Journal Club coordinator, Cornell University GGD Graduate Student Association panelist, Cornell University BMCB-GGD Symposium organizer, Cornell University Student host for Weill Symposium, Cornell University Oct. 2019 – Oct. 2020 Cot. 2018
SELECTED PRESS	Cornell Chronicle: Faulty 'eat-me' signal may trigger neurodegeneration 2018
TEACHING EXPERIENCES	TA and guest lecturer, Survey of Cell Biology, Cornell University TA, Survey of Cell Biology, Cornell University Spring 2021 Spring 2018
AWARDS & HONORS	American Heart Association (AHA) Postdoctoral Fellowship Award Drosophila Image Award Honorable Mention Cornell CALS Outstanding Teaching Assistant Hsien and Daisy Yen Wu Scholarship Cornell Graduate Student Travel Grants Cornell Fellowship SJTU-Zhiyuan Outstanding Student Scholarship SJTU-Zhiyuan Outstanding Student Scholarship SJTU-Zhiyuan Best Honored Thesis SJTU-Zhiyuan Oversea Research Award Chinese National Scholarships (avarded to the top 0.2% undergraduate students in China for academic excellence)