

# Hui Ji

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**EDUCATION** *Ph.D. in Genetics* Expected 2022  
Cornell University, Ithaca, NY

- Ph.D. research in mechanisms of neurodegeneration under direction of Prof. Chun Han.

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

**RESEARCH EXPERIENCES** *Graduate Research Assistant* May 2017 – Present  
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

- Screened for tissue-specific enhancers in *Drosophila*.
- Illustrated temporal profile of dynamic PS exposure during dendrite degeneration in *Drosophila*.

*Undergraduate Research Assistant* Mar. 2014 – July 2015  
The Lab of Shigang He  
School of Biomedical Engineering, SJTU, Shanghai, P.R. China

- Evaluated mitochondrial functions in rat retinal ischemia-reperfusion model.
- Explored a rat chronic glaucoma model using intravitreal microbead-injection.

**PUBLICATIONS** See also [my google scholar](#) page.

- **Ji, H.**, Wang, B., Labib, D., Lei, J., Chen, X.,Sapar, M. L., Boulanger, A., Dura, J., Han, C. Orion bridges phosphatidylserine and Draper in the phagocytosis of somatosensory neurons in *Drosophila* (In preparation)
- **Ji, H.**, Han, C. Regulation of neuronal morphogenesis by engulfment. Invited book chapter review. (In preparation)

- **Ji, H.\***, Sapar, M. L.\*, Sarkar, A., Wang, B., Han, C. (2021) Phagocytosis and self-destruction break down dendrites of *Drosophila* sensory neurons at distinct steps of Wallerian degeneration, *PNAS* (In press) (also on *bioRxiv*: <https://doi.org/10.1101/2020.06.26.173245>) (\* 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. doi: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.2018.07.095 (\* The authors have contributed equally to the work)

## PRESENTATIONS

### Oral

“Orion bridges phosphatidylserine and Draper in the phagocytosis of somatosensory neurons in *Drosophila*”

- 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<sup>+</sup> 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 *Drosophila* 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 – Present  
Mentored two undergraduates on their honored thesis projects Mar. 2019 – May. 2021

**SERVICE** GGD Climate Committee member, Cornell University Aug. 2020 – Present  
Cell Biology Journal Club coordinator, Cornell University Mar. 2019 – July 2021  
GGD Graduate Student Association panelist, Cornell University June 2021  
BMCB-GGD Symposium organizer, Cornell University Oct. 2019 – Oct. 2020  
Student host for Weill Symposium, Cornell University Oct. 2018

**SELECTED PRESS** [Cornell MBG Diversity Council: MBG Student Spotlight](#) 2021  
[Cornell Chronicle: Faulty 'eat-me' signal may trigger neurodegeneration](#) 2018

**TEACHING EXPERIENCES** TA and guest lecturer, Survey of Cell Biology, Cornell University Spring 2021  
TA, Survey of Cell Biology, Cornell University Spring 2018

**AWARDS & HONORS** Cornell Graduate Student Travel Grants 2018, 2019  
Cornell Fellowship 2016  
Elite Graduate of Shanghai 2016  
(*awarded to top 5% college or university graduates in Shanghai*)  
SJTU-Zhiyuan Outstanding Student Scholarship 2016  
SJTU-Zhiyuan Best Honored Thesis 2016  
SJTU-Zhiyuan Oversea Research Award 2014  
Chinese National Scholarships 2014, 2015  
(*the highest honor awarded to the top 0.2% undergraduate students in China for academic excellence*)