

## Bochen Jiang, Ph.D.

Postdoctoral researcher

Chuan He group

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### EDUCATION

2014.09-2019.06 Ph.D. in Botany, College of Biological Sciences, China  
Agricultural University, Beijing, China

2010.09-2014.06 B.Sc. in Agronomy, Anhui Agricultural University, Hefei, China

### PROFESSIONAL EXPERIENCE

2019.07-2022.10 Postdoctoral researcher, Department of Molecular, Cell and  
Developmental Biology, University of California, Los Angeles, CA,  
USA.

2022.10-2024.07 Postdoctoral researcher, Department of Chemistry, The University  
of Chicago, Chicago, IL, USA.

2024.07-present Associate Professor, School of Life Sciences & Biotechnology,  
Shanghai Jiao Tong University, Shanghai, China.

### RESEARCH INTEREST

I am working in Chuan He's group, aiming to understand how RNA modification regulates plant growth and crop yield. With the latest single-based sequencing methods for RNA modifications, we have made several discoveries about how RNA modifications regulate photosynthesis and plant growth, such as *quantitative transcriptome N<sup>6</sup>-methyladenosine profiling reveals the mechanism of far-red regulated anthocyanin homeostasis in Arabidopsis (Nature communication, Under review)*.

During my postdoctoral work in Prof. Chentao Lin's lab, my collaborators and I provided the *photoregulatory mechanism by which light-induced liquid-liquid phase separation of CRYs modulates m<sup>6</sup>A writer activity*, mRNA methylation and abundance, and circadian rhythms in plants. (*Nature Plants, 2021*). My latest studies revealed that CRY-photobodies condense MAC3A to mediate transcription and regulate photomorphogenesis (*Science Advances, 2023*), and photo-condensation of the CRY2/SPA1/FIO1 complex regulates mRNA methylation and chlorophyll homeostasis in *Arabidopsis* (*Nature Plants, 2023*). These studies expand the understanding of *transcriptional and post-transcriptional mechanisms controlling plant growth in response to blue light*.

As a Ph.D. student under Prof. Shuhua Yang, I had found that the EBF1/2-PIF3 module controls the expression of CBF genes to fine-tune the CBF signaling pathway in plants' response to cold stress (*PNAS, 2017*). Meanwhile, the cold-induced interaction of CBFs and PIF3 prevents the mutually assured destruction mechanism of the PIF3-phyB complex, thus stabilizing thermosensor phyB to increase the freezing tolerance (*Molecular Plant, 2020*). The results of our study show that the CBFs-PIF3-phyB module plays a key role in maintaining the balance between plant growth and freezing tolerance, which helps plants adapt to and survive harsh environments.

## PUBLICATIONS (#co-first author and \*corresponding author)

**Jiang, B.** #\*, Zhong Z.#, Gu, L.#, Zhang X.#, Wei, J., Ye, C., Lin, G., Qu, G., Xiang, X., Chen, W., Gateas, M., Bailey-Serres, J., He C., Wang X.\* and Lin, C.\* (2023). Light-induced LLPS of the CRY2/SPA1/FIO1 complex regulating mRNA methylation and chlorophyll homeostasis in *Arabidopsis*. **Nature Plants** (Invited with a research briefing)

**Jiang, B.** and Lin, C. Light-induced protein condensation regulates chlorophyll homeostasis. **Nature Plants** 9, 1952–1953 (2023). (Research Briefing)

**Jiang, B.**#\*, Zhong, Z.#, Su, J.#, Zhu, T., Yueh, T., Bragasin, J., Bu, V., Zhou, C., Lin, C., and Wang, X\*. (2023). Co-condensation with photoexcited cryptochromes facilitates MAC3A to positively control hypocotyl growth in *Arabidopsis*. **Science Advances** 9, eadh4048.

**Jiang, B.\***. Light-induced Cryptochrome 2 Liquid-Liquid Phase Separation and mRNA methylation. **New Phytologist** (2024, Under review) (Invited Tansley insight)

Wang, X.#, **Jiang, B.**#, Gu, L.#, Chen, Y., Mora, M., Zhu, M., Noory, E., Wang, Q\*., and Lin C.\* (2021). A photoregulatory mechanism of the circadian clock in *Arabidopsis*. **Nature Plants** 7, 1397–1408 (2021). (**Cover story** and Highlighted with a News & Views in *Nature Plants*) (**Highly cited paper**, recommended by *Faculty opinions*)

**Jiang, B.**#, Shi, Y.#, Peng, Y., Jia, Y., Yan, Y., Dong, X., Li, H., Dong, J., Li, J., Gong, Z., and Yang, S.\* (2020). Cold-induced CBF-PIF3 interaction enhances freezing tolerance by stabilizing the phyB thermosensor in *Arabidopsis*. **Molecular Plant** 13, 894-906. (Highlighted with a Spotlight article in *Trends in Plant Science*) (**Highly cited paper**)

**Jiang, B.**#, Shi, Y.#, Zhang, X., Xin, X., Qi, L., Guo, H., Li, J.\*, and Yang, S.\* (2017). PIF3 is a negative regulator of the CBF pathway and freezing tolerance in *Arabidopsis*. **Proc. Natl. Acad. Sci. USA** 114, E6695-E6702. (Highlighted with a News & Views in *Nature Plants* and a Spotlight article in *Trends in Plant Science*) (**Highly cited paper**)

Qu G., **Jiang, B.**, and Lin, C.\* The dual-action mechanism of *Arabidopsis* cryptochromes. (2023). **Journal of Integrative Plant Biology** 66(5): 883-896.

Wang G, Li H, Ye C, He K, Liu S, **Jiang B.**, Ge R, Gao B, Wei J, Zhao Y, et al. (2024) Quantitative profiling of m(6)A at single base resolution across the life cycle of rice and *Arabidopsis*. **Nat Communications** 15(1): 4881.

Zhang, L.\*, Ju, C. **Jiang, B.**, and He, C. (2023). Base-resolution quantitative DAMM-seq for mapping RNA methylations in tRNA and mitochondrial polycistronic RNA. *Enzymes in RNA Science and Biotechnology: Part B*, pp. 39-54. 10.1016/bs.mie.2023.08.001. (Book chapter)

Dong, X., Yan, Y., **Jiang, B.**, Shi, Y., Jia, Y., Cheng, J., Shi, Y., Kang, J., Li, H., Zhang, D., et al. (2020). The cold response regulator CBF1 promotes *Arabidopsis* hypocotyl growth at ambient temperatures. **EMBO Journal**. 39, e103630.

Yan, Y., Li, C., Dong, X.J., Li, H., Zhang, D., Zhou, Y.Y., **Jiang, B.C.**, Peng, J., Qin, X.Y., Cheng, J.K., et al. (2020). MYB30 is a key negative regulator of *Arabidopsis* photomorphogenic development that promotes PIF4 and PIF5 protein accumulation in the Light. **Plant Cell** 32, 2196-2215.

## **AWARDS**

2024 New Phytologist Tansley Medal (Shortlisted and invited with Tansley insight)

2019 Excellent Graduates in Beijing

2018 China Agricultural University First Prize Doctoral Scholarship

2017 China National Scholarship

2017 Syngenta Graduate Scholarship

2017 China Agricultural University Presidential Scholarship

2014 Excellent Graduates in Anhui Province

## **REVIEWER FOR JOURNALS**

*Plant Communications; Plant, Cell & Environment; Horticulture Research; Plant Science; Plant cell reports; BMC plant biology; Frontiers in Plant Science; Journal of Plant Physiology; Guest editor for Frontiers in Genome Editing*