

# Xianqing Jia

**Prof., Ph.D. in Plant Biology**

**Research in:** Plant Evolution&Devolpment, Plant Nutrition, Genome Biology, Bioinformatics

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## Employment

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- 2023.09–Present**    **College of Life Sciences, Northwest University, Professor, PI**  
**Projects:** Evolution of phosphate signaling in Plantae; Origin and evolution of genetic regulatory networks controlling plants-microbes interaction; Evolution of *cis*-elements of nutrient-starvation response. [[Lab website](#)]
- 2023.02–2023.05**    **School of Biosciences, University of Nottingham, Visiting Postdoc**  
**Projects:** Root architectures shaped by plants-microbes interaction.  
**Mentor:** Prof. Gabriel Castrillo [[Lab website](#)]
- 2020.07–2023.09**    **Chinese Academy of Agricultural Sciences, Postdoc**  
**Projects:** Evolution of phosphate storage forms in Plantae; Origin and evolution of SA signaling pathway; Impact of nutrients on alternative splicing.  
**Mentor:** Prof. Keke Yi [[Lab website](#)]

## Education

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- 2017.09–2020.06**    **Nanjing University, Ph.D. in Biology**  
**Thesis:** Recombination assessment based on a reporting system at the rice *SD1* locus  
**Advisors:** Prof. Sihai Yang & Prof. Dacheng Tian [[Lab website](#)]
- 2014.09–2017.06**    **Nanjing University, M.S. in Pharmacy engineering**  
**Thesis:** A systematic study on the function and evolution trajectory of OsDof genes  
**Advisor:** Prof. Sihai Yang & Prof. Dacheng Tian [[Lab website](#)]
- 2010.09–2014.06**    **Qinghai University, B.S. in Biotechnology**

## Research Experiences

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### Main projects:

- 2023-Now    Origin and evolution of regulatory networks controlling plants-microbes interaction
- 2022-Now    Effects of microbe-induced salicylic acid signaling on nutrient uptake in plant roots
- 2021-Now    Evolution of phosphate signaling in Plantae

- Publications:** *The Plant Cell*, 2022; *Journal of Cleaner Production*, 2022; *Plant Physiology and Biochemistry*, 2023; *Trends in Plant Science*, 2023; *New Phytologist*, 2023
- 2020-2022 Origin and evolution of salicylic acid biosynthesis and signaling in Plantae  
**Publications:** *Molecular Plant*, 2023; *New Phytologist*, 2023
- 2020-2022 Revolution of phosphate storage forms in plant evolution  
**Publications:** *Molecular Plant*, 2021; *New Phytologist* 2021; *Plant Biotechnology Journal*, 2023;
- 2016-2020 CRISPR-based assessment and evolutionary analysis of the *Dof* gene family in rice  
**Publications:** *The Plant Journal*, 2021
- 2015-2019 Assessment of meiotic and mitotic recombination events in rice  
**Publications:** *The Plant Journal*, 2019; *Journal of Plant Physiology*, 2020; *PLOS Biology*, 2021.

### Publications (# co-first author, \* co-corresponding author)

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1. Zhao, B., **Jia, X.#**, Yu N., Murray J., Yi, K., & Wang E. (2024). Microbe-dependent and Independent Nitrogen and Phosphate Acquisition in Plants. *New Phytologist*, 242(4), 1507–1522. [[Link](#)]
2. Wang, L., **Jia, X.#,\***, Xu, L., Yu, J., Ren, S., Yang, Y., Wang, K., López-Arredondo, D., Herrera-Estrella, L., Lambers, H., & Yi, K. (2023). Engineering microalgae for water phosphorus recovery to close the phosphorus cycle. *Plant Biotechnology Journal*, 21(7), 1373–1382. [[Link](#)]
3. **Jia, X.**, Wang, L., Nussaume, L., & Yi, K. (2023). Cracking the code of plant central phosphate signaling. *Trends in Plant Science*, 28(3), 267–270. [[Link](#)]
4. **Jia, X.**, Wang, L., Zhao, H., Zhang, Y., Chen, Z., Xu, L., & Yi, K. (2023). The origin and evolution of salicylic acid signaling and biosynthesis in plants. *Molecular Plant*, 16(1), 245–259. [[Link](#)]
5. Guo, M., Zhang, Y., **Jia, X.#**, Wang, X., Zhang, Y., Liu, J., Yang, Q., Ruan, W., & Yi, K. (2022). Alternative splicing of REGULATOR OF LEAF INCLINATION 1 modulates phosphate starvation signaling and growth in plants. *The Plant Cell*, 34(9), 3319–3338. [[Link](#)]
6. Zhang, Y., Wang, L., Guo, Z., Xu, L., Zhao, H., Zhao, P., Ma, C., Yi, K., & **Jia, X.\*** (2022). Revealing the underlying molecular basis of phosphorus recycling in the green manure crop *Astragalus sinicus*. *Journal of Cleaner Production*, 341, 130924. [[Link](#)]
7. Wang, X., Wang, B., Song, Z., Zhao, L., Ruan, W., Gao, Y., **Jia, X.\*** & Yi, K. (2022). A spatial-temporal understanding of gene regulatory networks and NtARF-mediated regulation of potassium accumulation in tobacco. *Planta*, 255(1), 1–15. [[Link](#)]
8. Yu, L., Ma, S., Zhang, X., Tian, D., Yang, S., **Jia, X.\***, & Traw, M. B. (2021). Ancient rapid functional differentiation and fixation of the duplicated members in rice *Dof* genes after whole genome duplication. *The Plant Journal*, 108(5), 1365–1381. [[Link](#)]
9. **Jia, X.**, Wang, L., Zeng, H., & Yi, K. (2021). Insights of intracellular/intercellular phosphate transport and signaling in unicellular green algae and multicellular land plants. *New Phytologist*, 232(4), 1566–1571. [[Link](#)]
10. Wang, L., **Jia, X.#**, Zhang, Y., Xu, L., Menand, B., Zhao, H., Zeng, H., Dolan, L., Zhu, Y., & Yi, K. (2021). Loss of two families of SPX domain-containing proteins required for vacuolar polyphosphate accumulation coincides with the transition to phosphate storage in green plants. *Molecular Plant*, 14(5), 838–846. [[Link](#)]

11. **Jia, X.** Zhang, Q., Jiang, M., Huang, J., Yu, L., Traw, M. B., Tian, D., Hurst, L. D., & Yang, S. (2021). Mitotic gene conversion can be as important as meiotic conversion in driving genetic variability in plants and other species without early germline segregation. *PLOS Biology*, 19(3), e3001164. [[Link](#)]
12. **Jia, X.** Yu, L., Tang, M., Tian, D., Yang, S., Zhang, X., & Traw, M. B. (2020). Pleiotropic changes revealed by in situ recovery of the semi-dwarf gene *sd1* in rice. *Journal of Plant Physiology*, 248, 153141. [[Link](#)]
13. **Jia, X.** Zhang, Y., Zhang, Q., Zhao, Q., Traw, M. B., Wang, L., Tian, D., Wang, C., & Yang, S. (2019). High-resolution insight into recombination events at the *SD1* locus in rice. *The Plant Journal*, 97(4), 683–692. [[Link](#)]
14. Memon, S., **Jia, X.**<sup>#</sup>, Gu, L., & Zhang, X. (2016). Genomic variations and distinct evolutionary rate of rare alleles in *Arabidopsis thaliana*. *BMC Evolutionary Biology*, 16(1), 25. [[Link](#)]
15. Yu, J., Wang, L., **Jia, X.**, Wang, Z., Yu, X., Ren, S., Yang, Y., Ye, X., Wu, X., Yi, K., & Zhu, Y. (2023). Different microbial assembly between cultivated and wild tomatoes under P stress. *Soil Science and Environment*, 2(1), Article SSE-2023-0010. [[Link](#)]
16. Yang, Y., Ren, S., **Jia, X.**, Zeng, H., Wang, L., Zhu, Y., & Yi, K. (2023). Measurement of total phosphorus and polyphosphate in *Chlamydomonas reinhardtii*. *Bio-Protocol*, 13(11), e4692. [[Link](#)]
17. Xu, L., Zhao, H., Wang, J., Wang, X., **Jia, X.**, Wang, L., Xu, Z., Li, R., Jiang, K., Chen, Z., Luo, J., Xie, X., & Yi, K. (2023). AIM1-dependent high basal salicylic acid accumulation modulates stomatal aperture in rice. *New Phytologist*, 238(4), 1420–1430. [[Link](#)]
18. Dai, S., Wu, H., Chen, H., Wang, Z., Yu, X., Wang, L., **Jia, X.**, Qin, C., Zhu, Y., Yi, K., & Zeng, H. (2023). Comparative transcriptome analyses under individual and combined nutrient starvations provide insights into N/P/K interactions in rice. *Plant Physiology and Biochemistry*, 197, 107642. [[Link](#)]
19. Xiong, H., Wang, R., **Jia, X.**, Sun, H., & Duan, R. (2022). Transcriptomic analysis of rapeseed (*Brassica napus*. L.) seed development in Xiangride, Qinghai Plateau, reveals how its special eco-environment results in high yield in high-altitude areas. *Frontiers in Plant Science*, 13, 927418. [[Link](#)]
20. Huo, Y., Zhao, Y., Xu, L., Yi, H., Zhang, Y., **Jia, X.**, Zhao, H., Zhao, J., & Wang, F. (2021). An integrated strategy for target SSR genotyping with toleration of nucleotide variations in the SSRs and flanking regions. *BMC Bioinformatics*, 22(1), 429. [[Link](#)]
21. Wang, L., Ji, Y., Hu, Y., Hu, H., **Jia, X.**, Jiang, M., Zhang, X., Zhao, L., Zhang, Y., Jia, Y., Qin, C., Yu, L., Huang, J., Yang, S., Hurst, L. D., & Tian, D. (2019). The architecture of intra-organism mutation rate variation in plants. *PLOS Biology*, 17(4), e3000191. [[Link](#)]

### Book chapter

1. **Jia, X.**, Wang, L., & Yi, K. (2023). Crosstalk between Phosphate and Other Nutrients. In *Plant Phosphorus Nutrition*. CRC Press. PP. 48-58. [[Link](#)]

### Patents

1. Yi, K., Wang, L., **Jia, X.**, & Xu, L. (2023). Modified Microalgae for Enhanced Phosphate Uptake Involving Overexpression of *Psr1* and Optionally Under expression of *Ptc1* (Patent WO2023198774A1).

### In Process

## Conducted and Participated in Grants

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### Grants from the National Natural Science Foundation of China (NSFC):

1. Alternative splicing changes of phosphate starvation response genes mediated by the PHRs-OsPASR module (No. 32202593) (PI)
2. Project funded by China Postdoctoral Science Foundation (No. 2021M693447) (PI)
3. Study on the molecular mechanism of phosphate homeostasis and remobilization in rice (No. 3213000485)
4. Assessment of meiosis mutation and recombination in perennial plants (No. 31671322)
5. Study on the mutation patterns of inter-organ and cell populations in plants (No. 91731308)
6. Discovery of gene clusters of rice blast resistance and its resistance mechanism research (No. 31870204)
7. Accumulation patterns and rules of somatic mutations in perennial plants (No. 31970236)

### Main Honors and Awards

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2022.08	Excellent Postdoctoral Fellow of the Chinese Academy of Agricultural Sciences
2021.06	Excellent Doctoral Thesis of Nanjing University
2020.12	Postdoctoral Innovative Support Program of the Chinese Academy of Agricultural Sciences
2020.01	Excellent Graduate Student of Nanjing University
2019.12	National Scholarship for Postgraduates
2016.12	The First Level Excellence Scholarship of Nanjing University
2014.06	Excellent Graduates of Qinghai University
2013.12	Kojima Scholarship
2012.12	National Scholarship for Undergraduates
2012.10	Merit Student of Qinghai University

### Additional Positions

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2024.1-Now	<b><i>BMC Biology</i></b> , Editorial Board Member
2024.3-Now	<b><i>Soil Science and Environment</i></b> , Young Scientists Editor
2024.5-Now	<b><i>Agriculture Communications</i></b> , Young Scientists Editor