Hongqing (Michelle) Guo, Ph.D.

Curriculum vitae

1 Professional Information

1.1 Contact Information

Hongqing (Michelle) Guo, Ph.D.
1035C Roy J. Carver Co-Lab
Iowa State University
Ames, IA 50011

Office: (515) 294 1028
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1.2 Education

May 2019 **PhD in Genetics and Genomics**
Iowa State University, Ames, IA
Thesis: *Deciphering the receptor kinase FERONIA: Functions and underlying mechanisms*
Advisors: Jo Anne Powell-Coffman, Ph.D. and Steve A. Whitham, Ph.D.

July 1991 **MS in Plant Biology**
Beijing Normal University, Beijing, China
Institute of Genetics and Developmental Biology,
Chinese Academy of Sciences, Beijing, China
Thesis: *Transformation and regeneration of wheat*
Advisors: Professor Shuzu Zhang and Professor Wenzhong Tian

July 1988 **BS in Biology**
Beijing Normal University, Beijing, China

1.3 Employment and Professional Experience

Jan 2022-present **Assistant Professor**
Department of Genetics, Development and Cell Biology
Iowa State University, Ames, IA

Aug 2019-Dec 2021 **Adjunct Assistant Professor**
Department of Genetics, Development and Cell Biology
Iowa State University, Ames, IA

Aug 2013-May 2019 **Graduate Research Associate**
Department of Genetics, Development and Cell Biology
Iowa State University, Ames, IA

Aug 2004-July 2019	**Assistant Scientist** Department of Genetics, Development and Cell Biology Iowa State University, Ames, IA
May 1995-Aug 2004	**Senior Associate Scientist** Johnson&Johnson, Pharmaceutical and Research Development San Diego, CA Projects involved and expertise acquired: **Gene discovery:** Differential Display, cDNA/Oligo Microarray, Laser Capture Microdissection, RNA amplification. **Drug discovery:** High-through-put screening of chemical compound libraries for drug target identification. **Managerial position:** Leading a small group in conducting Microarray experiments for multiple research groups.
Feb 1992-May 1995	**Research Technician** Department of Cell Biology, The Scripps Research Institute, La Jolla, CA Projects involved: *A novel calmodulin-regulated Ca2+-ATPase (ACA2) from Arabidopsis with an N-terminal autoinhibitory domain*
Aug 1991-Feb 1992	**Research Associate** Department of Endocrinology, The Institute of Zoology, Chinese Academy of Sciences, Beijing, China
Sep 1989-July 1991	**MS Student** The Institute of Genetics and Development, Chinese Academy of Sciences, Beijing, China

1.4 Honors and Awards

2025	Outstanding Achievement in Research, Department of GDCB
2009	Outstanding Research Award for P&S, College of Liberal Arts and Sciences, ISU

1.5 Professional Societies

2019-present	The American Society of Plant Biology
2024-present	International Conference for Arabidopsis Research

1.6 Memberships at Iowa State University

2024-present	Iowa Soybean Research Center (ISRC)

2022-present Interdepartmental Genetics and Genomics (IGG) Graduate Program

2021-present Crop Bioengineering Center (CBC)

2019-present Interdepartmental Plant Biology (IPB) Graduate Program

2019-present Molecular, Cellular and Developmental Biology (MCDB) Graduate Program

2 Scholarships in Research

2.1 Publications

https://scholar.google.com/citations?hl=en&user=luA7XeEAAAAJ&view_op=list_works&sortby=pubdate

h-index: 33 (As of Sep 2026);

*** indicates corresponding author**

The impactor factors were found in Journal Impact Search (https://www.bioxbio.com/), and they are from the year when the article was published.

Publications since appointment as Assistant Professor:

47. Ping Wang, Juan Du, Jiangman He, Zhi Li, Justin W. Walley, Meng Chen* and **Hongqing Guo***. 2026. FERONIA phosphorylates the amino-terminal extension of phytochrome B to modulate plant light and temperature responses. **PNAS**. https://doi.org/10.1073/pnas.2617902123

Impact factor: 9.5

Significance: Phytochrome B (phyB) is a prominent light and temperature sensor that optimizes plant growth and development in response to environmental light and temperature changes. PhyB N-terminal Extension (NTE, amino acid 1-90) is essential for phyB activity, which is modulated by phosphorylation. However, kinases responsible for this regulation are not fully defined. FERONIA (FER) receptor kinase is a critical regulator in plant growth and stress responses and here we show that FER phosphorylates at two specific sites of phyB NTE to attenuate its activity. Our results thus fill an important knowledge gap by identifying a kinase responsible for two site-specific phyB phosphorylation leading to altered phyB activity and reveal a mechanism by which FER receptor kinase modulates environmental sensing.

Guo lab contribution: I'm a co-corresponding author who supervised the study; Ping Wang, one of the co-first authors, was a postdoc in the Guo/Yin lab.

46. Jie Tang and **Hongqing Guo***. 2025. Jack of all trades: Crosstalk between FERONIA signaling and hormone pathways. **Journal of Experimental Botany.**
https://doi.org/10.1093/jxb/eraf071

Impact factor: 5.6

Significance: FERONIA receptor kinase plays critical roles in plant growth, development, stress responses and reproduction, and is one of the most studied receptor kinases in plants to date. This review provides a comprehensive summary of the progress on the crosstalk between FERONIA signaling pathway and phytohormones, and identifies knowledge gaps and offer some potential research directions.

Guo lab contribution: I'm the corresponding author; Jie Tang is a postdoc in my lab.

45. Kai Wang, **Hongqing Guo,** Yanhai Yin. 2024. AP2/ERF Transcription Factors and Their Functions in Arabidopsis in response to Abiotic Stress. **Environmental and Experimental Botany.**
https://doi.org/10.1016/j.envexpbot.2024.105763
Impact factor: 4.5
Significance: This review provides a comprehensive summary of the progress on AP2/ERF Transcription Factors and their roles in abiotic stress response, and identifies knowledge gaps and offer some potential research directions.
Guo lab contribution: I contributed to manuscript outline and writing.

44. Hao Wang, Yumou Qiu, **Hongqing Guo,** Yanhai Yin, Peng Liu. 2024. Information-incorporated gene network construction with FDR control. **Bioinformatics.**
https://doi.org/10.1093/bioinformatics/btae125
Impact factor: 4.4
Significance: Using a set of transcriptome data my lab published, the collaborator's lab developed a computational tool to predict novel gene interactions, which performs better than the available ones.
Guo lab contribution: I contributed to analyze the transcriptomic data and writing the manuscript.

43. **Hongqing Guo** and Yanhai Yin. 2023. Redesigning green revolution trait with increased grain yield and nitrogen utilization efficiency by reducing brassinosteroid signaling in semidwarf wheat. Research Highlight in **Science China Life Sciences.**
https://doi.org/10.1007/s11427-023-2401-3
Impact factor: 8.0
Significance: This is a research highlight on a seminal study published in Nature on the characterization of a semidwarf wheat due to reduced brassinosteroid signaling. This wheat variety has enhanced nitrogen utilization efficiency and possesses great potential for crop improvement.
Guo lab contribution: I contributed to the manuscript outline and writing.

42. Liao CY, Y Pu, TM Nolan, C Montes, **H Guo**, JW Walley, Y Yin, and DC Bassham. 2023. Brassinosteroids modulate autophagy through phosphorylation of RAPTOR1B by the GSK3-like kinase BIN2 in Arabidopsis. **Autophagy**.
https://doi.org/10.1080/15548627.2022.2124501
Impact factor: 14.6
Significance: This study identified a novel mechanism mediating the crosstalk between brassinosteroid signaling autophagy, which led to the successful renew of an NIH grant.
Guo lab contribution: I contributed to the experimental analysis of a key antibody in the study.

41. Montes C, P Wang, CY Liao, TM Nolan, G Song, NM Clark, JM Elmore, **H Guo**, DC Bassham, Y Yin, JW Walley. 2022. Integration of multi-omics data reveals interplay between brassinosteroid and TORC signaling in Arabidopsis. **New Phytol**, 236: 893–910.
https://doi.org/10.1111/nph.18404
Impact factor: 9.4
Significance: This study examined the crosstalk between brassinosteroid signaling autophagy using integrated multiomics approach, which led to the successful renew of an NIH grant.
Guo lab contribution: I contributed to the experimental validation of the multi-omics analysis.

40. Xiong, J. W., Yang, F. B., Yao, X. H., Zhao, Y. Q., Wen, Y., Lin, H. H., **Guo, H.** Q., Yin, Y. H., and Zhang, D. W. 2022. The deubiquitinating enzymes UBP12 and UBP13 positively regulate recovery after carbon starvation by modulating BES1 stability in Arabidopsis thaliana. **Plant Cell,** 34 (11): 4516-4530.
https://doi.org/10.1093/plcell/koac245
Impact factor:11.6
Significance: This study identified two de-ubiqutinases that positively regulate BES1 function, the master regulator in the brassinosteroid signaling pathway.
Guo lab contribution: I contributed to the discussion and writing of the manuscript.

39. Wang P, NM Clark, TM Nolan, G Song, *OG Whitham,* CY Liao, C Montes-Serey, DC Bassham, JW Walley, Y Yin, **H Guo*** (2022) Feronia functions through Target of Rapamycin (TOR) to negatively regulate autophagy. **Front Plant Sci**,13:961096.
https://doi.org/10.3389/fpls.2022.961096
Impact factor: 5.6
Significance: This study discovered that FERONIA receptor kinase regulates autophagy through TOR kinase, which expanded our understanding on this receptor signaling pathway.
Guo lab contribution: I'm the corresponding author; first author, Ping Wang, is a postdoc who I co-supervise; co-author, Olivia Whitham, was an undergraduate research assistant under my supervision.

38. *Wang P,* Clark MC, Nolan TM, Song G, *Bartz PM,* Liao CY, Montes C, Katz E, Polko JK, Kieber JJ, Kliebenstein DJ, Bassham DC, Walley JW, Yin Y***, Guo H*. 2022**. Integrated Omics Reveal Novel Functions and Underlying Mechanisms of FERONIA Receptor Kinase in *Arabidopsis thaliana.* **Plant Cell.** 34 (7): 2594-2614.
(In Brief: https://academic.oup.com/plcell/advance-article/doi/10.1093/plcell/koac112/6569841)
https://doi.org/10.1093/plcell/koac111
Impact factor:11.6
Significance: Using integrated omics approach, this study expanded our understanding on FERONIA receptor kinase, its substrates, regulated genes and many previously unknown functions, which led to the award of my NIH grant (R35GM155200).
Guo lab contribution: I'm a co-corresponding author who supervised the study; first author, Ping Wang, is a postdoc who I co-supervise; co-author, Parker Bartz, was a research assistant under my supervision.

Publications prior to the Assistant Professor position:

37. Wang P, Nolan TM, Clark NM, Jiang H, Montes C. **Guo H**, Bassham DC, Walley JW, Yin Y. **2021**. F-box E3 Ubiquitin Ligase BAF1 Mediates the Degradation of Brassinosteroid-activated Transcription Factor BES1 through Selective Autophagy in Arabidopsis. **Plant Cell.** 0:1-23

36. Clark NM, Nolan TM, Wang P, Song G, Montes C, **Guo H**, Sozzani R, Yin Y, Walley JW. **2021**. Integrated omics networks reveal the temporal signaling events of brassinosteroid response in Arabidopsis. **Nature Communications.** 12:5858

35. Zhang D, Tan W, Li J, Wen Y, **Guo H,** Liu B, Yin Y, Lin H. **2021.** BRASSINOSTEROID INSENSITIVE2 Phosphorylates GOLDEN2-LIKE1 to Modulate Brassinosteroid Responses and Photomorphogenesis during Chloroplast Development. **Developmental Cell** 56 (3), 310-324. e7

34. **Guo H,*** Yin, Y. **2019**. Measuring protein half-life in Arabidopsis thaliana. **Bio-Protocol** 9 (15) : e3318. (*corresponding author)

33. Hansen RL, **Guo H,** Yin Y, Lee, YJ. **2019**. High-throughput Lipid Screening Discovers Arabidopsides as Biomarkers of FERONIA in Arabidopsis thaliana. **The Plant Journal.** 97(2): 341-351.

32. **Guo H*,** Nolan T, Song G, Liu S, Xie, Z., Chen, J., Schnable, P., Walley, J and Yin, Y*. **2018**. Feronia receptor kinase contributes to plant immunity by suppressing Jasmonic acid signaling. **Current Biology.** 28: 3316-3324. (* co-corresponding author)
(News release: https://www.news.iastate.edu/news/2018/10/24/feronia)

31. Nolan, T., Liu, S., **Guo, H.,** Li, L., Schnable, S. & Yin, Y. **2017**. Identification of Brassinosteroid Target Genes by Chromatin Immunoprecipitation Followed by High-throughput Sequencing (ChIP-seq) and RNA-seq. **Method in Molecular Biology**. 1564: 63-79.

30. Ye, H., Liu, S., Tang, B., Nolan. T., Xie, Z., Chen, J., Schulte, R., **Guo, H.,** Li, Z., Aluru, M., Aluru, S., Schnable, P., Yin, Y. **2017**. RD26 mediates the crosstalk between drought and Brassinosteroid signaling pathway. **Nature Communications.** 8:14753

29. Chockalingam, S. P., Aluru, M., **Guo, H.,** Yin, Y., Aluru, S. **2017**. Reverse Engineering Gene Networks: A Comparative Study at Genome-scale. ***The 8th ACM International Conference***. DOI: 10.1145/3107411.3107428.

28. Deng XG, Zhu T, Peng XJ, Xi DH, **Guo H,** Yin Y, Zhang DW, Lin HH. **2016**. Role of brassinosteroid signaling in modulating Tobacco mosaic virus resistance in Nicotiana benthamiana. **Sci Rep**. 6:20579.

27. Zhang, D, Yuan, S, Xu, F., Zhu, F., Yuan M., Ye, H., **Guo, H.,** Lv, X., Yin, Y. and Lin, H. **2016**. Light intensity affects chlorophyll synthesis during greening process by metabolite signal from mitochondrial alternative oxidase in Arabidopsis. **Plant Cell & Environment**. 39(1):12-25.

26. Wang, X., Chen J., Xie, Z., Liu, S., Nolan, T., Ye, H., Zhang, M., **Guo, H.,** Schnable, P.S., Li, Z. and Yin, Y**. 2014**. Histone Lysine Methyltransferase SDG8 Is Involved in Brassinosteroid Regulated Gene Expression in *Arabidopsis thaliana.* **Molecular Plant**. 7: 1303-1315.

25. Zhang, D., Ye, H, **Guo, H.,** Johnson, A., Zhang, M., Lin, H, and Yin, Y. **2014.** Transcription Factor HAT1 is Phosphorylated by BIN2 Kinase and Mediates Brassinsteroid Repressed Gene Expression in Arabidopsis. **Plant J.** 77: 59-70**.**

24. Zhang, D., Ye, H, **Guo, H.,** Johnson, A., Zhang, M., Lin, H, and Yin, Y. **2014**. Transcription factors involved in brassinosteroid repressed gene expression and their regulation by BIN2 kinase. **Plant Signal Behav**. 9: e27849

23. **Guo H,** Li L, Aluru M, Aluru S, Yin Y. **2013**. Mechanisms and networks for brassinosteroid regulated gene expression. **Curr Opin Plant Biol**. 16:545-53.

22. Ye, H., Li, L., **Guo, H.**, Yin Y. **2012.** MYBL2 is a substrate of GSK3-like kinase BIN2 and acts as a corepressor of BES1 in brassinosteroid signaling pathway in Arabidopsis. **Proc Natl Acad Sci U S A**. 109: 20142-20147.

21. Yu, X., Li, L., Zola, J., Aluru, M., Ye, H., Foudree, A., **Guo, H.,** Anderson, S., Aluru, S., Liu, P., Rodermel, S., and Yin, Y. **2011**. A Brassinosteroid transcriptional network revealed by genome-wide identification of BES1 target genes in *Arabidopsis thaliana*. **Plant J**. 65: 634-646

20. Li, L., Ye, H, **Guo, H**., Yin Y**. 2010**. *Arabidopsis* IWS1 interacts with transcription factor BES1 and is involved in Brassinosteroid regulated gene expression**. Proc Natl Acad Sci U S A.** 107:3918-3923

19. **Guo, H,** Li, L, Ye, H, Yu, X, Algreen, A, Yin Y. **2009**. Three Related Receptor-Like Kinases Are Required for Optimal Cell Elongation in *Arabidopsis thaliana.* **Proc Natl Acad Sci U S A.** 106: 7648-7653

18. **Guo, H.,** Ye, H., Li, L.,Yin Y**. 2009**. A family of Receptor-Like Kinases are regulated by BES1 and involved in plant growth in *Arabidopsis thaliana.* **Plant Signaling & Behavior. 4:** 784-786

17. Maher, M, Wu, N, **Guo, H**, Dubin A, Chaplan, S, and Wickenden, A. **2009**. HCN Channels as Targets for Drug Discovery. **Combinatorial Chemistry & High Throughput Screening***,* 12, 64-72.

16. Li, L, Yu, X, Thompson, A, **Guo, H.,** Yoshida, S, Asami, T, Chory, J, Yin Y. **2009**. *Arabidopsis* MYB30 is a direct target of BES1 and cooperates with BES1 to regulate brassinosteroid target gene expression. **Plant J.** 58: 275-286

15. Srivastava, R., Liu, J., **Guo, H**., Yin, Y**.,** Howell, S. **2009**. Regulation and processing of a plant peptide hormone, AtRALF23, in *Arabidopsis*. **Plant J.** 59: 930-939.

14. Yu X, Li L, Li L, **Guo H.**, Chory J, Yin Y. **2008**. Modulation of brassinosteroid-regulated gene expression by Jumonji domain-containing proteins ELF6 and REF6 in *Arabidopsis.* **Proc Natl Acad Sci USA**. 105: 7618-7623

13. **Guo H** and Chaplan SR. **2003**. Semi-Quantitative Real-Time PCR for Pain Research. **Methods Mol Med.** 99:225-238.

12. Kamme F, Salunga R, Yu J, Tran DT, Zhu J, Luo L, Bittner A, **Guo H,** Miller N, Wan J, Erlander M. **2003**. Single-cell microarray analysis in hippocampus CA1: demonstration and validation of cellular heterogeneity. **J Neurosci**. 23:3607-15.

11. Chaplan SR, **Guo H,** Lee DH, Luo L, Liu C, Kuei C, Velumian AA, Butler MP, Brown SM, Dubin AE. **2003**. Neuronal hyperpolarization-activated pacemaker channels drive neuropathic pain. **J Neurosci.** 23:1169-78.

10. Bender E, Buist A, Jurzak M, Langlois X, Baggerman G, Verhasselt P, Ercken M, **Guo H,** Wintmolders C, Van den Wyngaert I, Van Oers I, Schoofs L, Luyten W. **2002**. Characterization of an orphan G protein- coupled receptor localized in the dorsal root ganglia reveals adenine as a signaling molecule. **Proc Natl Acad Sci.** 99:8573-8.

9. Bonaventure P, **Guo H,** Tian B, Liu X, Bittner A, Roland B, Salunga R, Ma X, Kamme F, Meurers B, Bakker M, Leysen J, Erlander, MG. **2002**. Nuclei and subnuclei gene expression profiling in mammalian brain. **Brain Research.** 943:38-47.

8. Salunga RC, **Guo H,** Luo L, Bittner A, Joy KC, Chambers JR, Wan JS, Jackson MR, Erlander MG. **1999**. Gene expression analysis via cDNA microarrays of laser capture microdissected cells from fixed tissue. **DNA Microarrays, A Practical Approach.** 121-137.

7. Chambers J, Angulo A, Amaratunga D, **Guo H,** Jiang Y, Wan JS, Bittner A, Frueh K, Jackson MR, Peterson PA, Erlander MG, Ghazal P. **1999**. DNA microarrays of the complex human cytomegalovirus genome: profiling kinetic class with drug sensitivity of viral gene expression. **J Virol.** 73:5757-66.

6. Luo L, Salunga RC, **Guo H,** Bittner A, Joy KC, Galindo JE, Xiao H, Rogers KE, Wan JS, Jackson MR and Erlander MG. **1999**. Gene expression profiles of laser-captured adjacent neuronal subtypes. **Nat Med.** 5:117-22.

5. Zhang KZ, Junnikkala S, Erlander MG, **Guo H,** Westberg JA, Meri S, Andersson LC. **1998**. Up-regulated expression of decay-accelerating factor (CD55) confers increased complement resistance to sprouting neural cells. **Eur J Immunol.** 28:1189-96.

4. Zhang KZ, Westberg JA, Paetau A, von Boguslawsky K, Lindsberg P, Erlander M, **Guo H,** Su J, Olsen HS, Andersson LC. **1998**. High expression of stanniocalcin in differentiated brain neurons. **Am J Pathol.** 153:439-45.

3. Harper JF, Hong B, Hwang I, **Guo H,** Stoddard R, Huang JF, Palmgren MG, Sze H. **1998**. A novel calmodulin-regulated Ca2+-ATPase (ACA2) from Arabidopsis with an N-terminal autoinhibitory domain. **J Biol Chem.** 273:1099-106.

2. Galindo JE, Poirier GMC, **Guo H**, Huvar A, Wagaman PC, Zhu J, Tench J, Wan JS, Erlander MG. **1997**. Differential display of RNA. **DNA Markers.** 225-236.

1. Yin Y, Li S, Chen Y, **Guo H,** Tian W, Chen Y, Li L. **1993.** Fertile plants regenerated from suspension culture-derived protoplasts of an indica type rice (Oryza sativa L.). **Plant Cell, Tissue and Organ Culture.** 32:61-68.

Patent

Hongqing Guo and Yanhai Yin, **2011**, Modulation of Receptor-Like Kinases for Promotion of Plant Growth US2011/0138498

Sandra Chaplan, Adrienne Dubin**, Hong-Qing Guo,** Doo Hyun Lee, Changlu Liu, Lin Luo, Sean Brown, **2002**, Treating pain by targeting hyperpolarization-activated, cyclic nucleotide-gated channels, Publication number: 20030022813

Research Presentations

2.2.1 Invited talks at other universities:

Nov 2026 "Elucidating Context-Specific Receptor Kinase Signaling". North Carolina State. Invited speaker

July 2026 "Elucidating Context-Specific Receptor Kinase Signaling". Mini symposium at University of Michigan. Invited speaker

April 2026 "Understanding FERONIA receptor kinase in plant growth and stress responses". Grinnell University. Invited speaker

April 2026 "Elucidating Context-Specific Receptor Kinase Signaling". University of Missouri. Keynote speaker

April 2026 "Elucidating Context-Specific Receptor Kinase Signaling". Penn State University. Invited speaker

Oct 2025 "Receptor kinase-mediated cellular signaling specificity in plant growth and stress responses". Michigan State University. Invited speaker

June 2025 "Receptor kinase-mediated cellular signaling specificity in plant growth and stress responses". Caltech. Invited speaker

Oct 2024 "Receptor kinase-mediated cellular signaling specificity in plant growth and stress responses". University of Minnesota. Invited speaker

Sep 2023 "Understanding FERONIA receptor kinase in plant growth and stress responses**".** Purdue University. Keynote speaker.

2.2.2 Invited/selected talks at conferences:

Oct 2026 "Cell type-specific gene manipulation uncovers FERONIA receptor kinase signaling specificity". Auxin 2026. Selected speaker

Jan 2026 "Elucidating the functions and molecular mechanisms of FERONIA receptor kinase signaling".
Plant & Animal Genome Conference 2026 (PAG 33), San Diego, CA.
Invited speaker

Jan 2025 "Single Cell RNA-Seq and Tissues-Specific CRISPR to Study Feronia Receptor Kinase Signaling".
Plant & Animal Genome Conference 2025 (PAG 32), San Diego, CA.
Invited speaker

June 2024 "Understanding Receptor Kinase Signaling Specificity using Single Cell Transcriptomics".
Plant Molecular Biology, Gordon Research Conference, Holderness, NH
Selected speaker

June 2023 "Understanding the Molecular Mechanisms Underlying FERONIA Receptor Kinase-mediated Signaling Using Multiomics Approach*".*
International Conference on Arabidopsis Research (ICAR), Chiba, Japan.
Invited speaker

Nov 2022 "Integrated Omics Reveal Novel Functions and Underlying Mechanisms of FERONIA Receptor Kinase Signaling".
Horticultural Biology Conference hosted Northwestern Agriculture and Forest University (NWAFU), China. Virtual format
Invited speaker

Nov 2022 "Deciphering the Role of FERONIA Receptor Kinase in Plant Growth and Stress Responses".
International Academic Symposium on Plant Adaptation Mechanisms to Environmental Stresses, China. Virtual format
Invited Speaker

July 2022 "Integrated Omics Reveal Novel Functions and Underlying Mechanisms of FERONIA Receptor Kinase Signaling in *Arabidopsis thaliana*".
American Society of Plant Biology (ASPB), Portland, Oregon
Selected speaker

June 2022 "Integrated Omics Reveal Novel Functions and Underlying Mechanisms of FERONIA Receptor Kinase Signaling in *Arabidopsis thaliana".*
International Conference on Arabidopsis Research (ICAR), virtual meeting**.**
Selected speaker

Oct 2021 "FERONIA Receptor Kinase Regulates Autophagy in Arabidopsis thaliana".
EMBO Workshop "Target of rapamycin (TOR) signaling in photosynthetic organisms", virtual meeting

Selected speaker

2.2.4 Invited talks in other venues:

Jan 2026 "Understanding Receptor Kinase Signaling using cell type-specific gene Manipulations". GDCB Research Day, Iowa State University. Invited speaker.

May 2024 "Understanding Receptor Kinase Signaling Specificity using Single Cell Transcriptomics". GDCB Research Day, Iowa State University. Invited speaker.

Oct 2023 "Understanding FERONIA receptor kinase in plant growth and stress responses". Genetics Club, Iowa State University. Invited speaker.

Aug 2023 "Understanding FERONIA receptor kinase in plant growth and stress responses". IPB faculty Seminar, Iowa State University. Invited speaker.

Dec 2022 "Deciphering the role of FERONIA receptor kinase in plant growth and stress responses". Crop Bioengineering Center (CBC) annual meeting, Iowa State University Invited speaker

Dec 2021 "Precise genome editing to study FERONIA receptor kinase in salt stress tolerance in maize".
Crop Bioengineering Center (CBC) annual meeting, Iowa State University
Invited speaker

Nov 2021 "Functions and Molecular Mechanisms of FEONIA Receptor Kinase in Plant Growth and Stress responses".
GDCB departmental seminar, Iowa State University. Invited speaker

Sep 2021 "Functions and Molecular Mechanisms of FEONIA Receptor Kinase in Plant Growth and Stress responses".
IPB faculty Seminar, Iowa State University. Invited speaker

Sep 2020 "Deciphering FERONIA Receptor Kinase: Functions and Mechanisms in Arabidopsis".
GDCB departmental seminar, Iowa State University. Invited speaker

Oct 2019 "Deciphering FERONIA Receptor Kinase: Functions and Mechanisms in Arabidopsis".
GDCB Research Day, Iowa State University. Invited speaker

Sep 2019 "Deciphering FERONIA Receptor Kinase: Functions and Mechanisms in Arabidopsis".
PLPM departmental seminar, Iowa State University. Invited speaker

2.2.5 Contributed Presentations:

Aug 2023 "Mutual regulation of FERONIA and BIN2".
4th International Brassinosteroid Conference, Ghent, Belgium.

Selected talk

April 2025 "WNK1 kinase regulates Brassinosteroid Signaling through phosphorylating BES1 transcription factor". Midwest ASPB, Lincoln, Nebraska.
Selected talk

2.2 Funding

Aug 2024-July 2029 **Elucidating Context-Specific FERONIA Receptor Kinase Signaling**
NIH R35, funded**,** 1R35GM155200
Total amount: $1,841,133
Role: Sole PI
Project Goals: The overall goal of this proposal is to study FERONIA-mediated cell signaling specificity using single cell transcriptomics and cell type-specific gene manipulation in Arabidopsis root.
https://www.news.iastate.edu/news/2024/10/16/feronia

https://iowacapitaldispatch.com/2024/10/25/isu-researcher-receives-grant-to-conduct-plant-gene-research-increase-resiliency-during-stress/

https://research.iastate.edu/2025/07/17/external-sponsored-funding-for-iowa-state-research-surpasses-300-million-for-third-straight-year/

Dec 2024-June 2025 "**Identification of Feronia receptor kinase substrates in maize to improve plant resilience under stress conditions presented by a changing climate."**
Crop Bioengineering Center (CBC) Seed Grant, Iowa State University
Role: Co-PI, with PI Erica Unger-Wallace
Project Goals: The overall goal of this proposal is to analyze downstream signaling components of FERONIA identified in the multi-omics study in Maize.
Total amount: $30,000

Mar 2021-Dec 2021 **Precise Genome Editing to Study FERONIA Receptor Kinase in Salt Tolerance in Maize**
Crop Bioengineering Center (CBC) Seed Grant, Iowa State University
Role: PI with Co-PIs: Erik Vollbrecht, Bing Yang and Yanhai Yin
Project Goals: The overall goal of this proposal is to study FERONIA-mediated salt stress tolerance in Maize by generating Maize FERONIA mutant using CRISPR/Cas9 and mutagenizing the phosphorylation sites of FERONIA substrates using precise genome editing.
Total amount: $30,000

Jan 2022-Jan-2025 Iowa State University Startup Funds
Role: PI

3 Teaching

3.1 List of Courses taught at Iowa State University

Courses taught since this Assistant Professor position:

Semester and Year	Course #	Course Credit Hours	Course title	Enrollment	Percent of course for which responsible
F2026	Gen 4090	3	Molecular Genetics	58	50%
S2026	PLBIO 6960	1	IPB Research Seminar	20	100%
S2026	GDCB 5110	3	Advanced Molecular Genetics	29	50%
F2025	Gen 4090	3	Molecular Genetics	55	50%
S2025	PLBIO 6960	1	IPB Research Seminar	23	100%
S2025	GDCB 5110	3	Advanced Molecular Genetics	20	50%
F2024	PLBIO 6960	1	IPB Research Seminar	23	100%
F2024	Gen 4090	3	Molecular Genetics	43	50%
S2024	PLBIO 696	1	IPB Research Seminar	21	100%
S2024	GDCB 511	3	Advanced Molecular Genetics	33	50%
F2023	PLBIO 696	1	IPB Research Seminar	23	100%
F2023	Gen 409	3	Molecular Genetics	43	50%
S2023	PLBIO 696	1	IPB Research Seminar	23	100%
S2023	GDCB 511	3	Advanced Molecular Genetics	27	50%
F2022	PLBIO 696	1	IPB Research Seminar	23	100%
F2022	Gen 409	3	Molecular Genetics	64	50%
S2022	PLBIO 696	1	IPB Research Seminar	23	100%

Student ratings on courses taught since this Assistant Professor position:

Semester and Year	Course #	Total Enrollment	% of Students Responding	Overall Rating of Instructor	Department Mean Instructor Rating for Comparable Courses	Overall Rating of Course	Department Mean Course Rating for Comparable Courses
F2026	Gen 4090						
S2026	GDCB 5110	28	75%	4.76		4.67	
F2025	Gen 4090	55	24%	4.54		4.54	
S2025	PLBIO 6960	23					
S2025	GDCB 5110	20	65%	4.92		4.92	
F2024	PLBIO 6960	23					
F2024	Gen 4090	43	37.21%	4.5		4.38	
S2024	PLBIO 696	21					
S2024	GDCB 511	33	57.58%	4.95	4.61	4.84	4.47
F2023	PLBIO 696	23					
F2023	Gen 409	43	45%	4.39	4.35	4.11	4.26
S2023	PLBIO 696	23					
S2023	GDCB 511	27	70.37%	4.79	4.65	4.68	4.65
F2022	PLBIO 696	23					
F2022	Gen 409	64	35%	4.24	4.18	4.14	4.35
S2022	PLBIO 696	23					

Courses taught prior to the Assistant Professor position:

Semester and Year	Course #	Course Credit Hours	Course title	Enrollment	Percent of course for which responsible
F2021	PLBIO 696	1	IPB Research Seminar	23	100%

F2021	Gen 409	3	Molecular Genetics	40	50%
S2021	Gen 409	3	Molecular Genetics	26	50%
F2020	Gen 409	3	Molecular Genetics	44	50%
S2020	GDCB 511	3	Advanced Molecular Genetics	29	50%
F2019	Gen 409	3	Molecular Genetics	35	50%
F2017	Biol 313L	1	Principals of Genetics Lab	48	75%
F2014	Biol 330	3	Plant Physiology	10	100%
S2014	Biol 155 XW	3	Introduction to Human Biology	66	100%
S2013	Biol 155 XW	3	Introduction to Human Biology	77	100%
F2012	Biol330/GDCB513	3	Plant Physiology/metabolism	11	50%
S2012	Biol 155 XW	3	Introduction to Human Biology	58	100%
F2011	Biol 155 XW	3	Introduction to Human Biology	43	100%
S2011	Biol 155 XW	3	Introduction to Human Biology	60	100%
F2010	Biol 155 XW	3	Introduction to Human Biology	62	100%
S2010	Biol 155 XW	3	Introduction to Human Biology	60	100%
F2009	Biol 155 XW	3	Introduction to Human Biology	60	100%

3.2 Additional teaching activities

Oct 2024: BCB/IGG/MCDB Fall Faculty Series

Fall 2017: Guest lecturer of BCB/GDCB/ME 585

Fall 2016: Substitute lecturer of Biol 101-Introduction to Biology

2004-2008: TA instructor in Biol 313L

4 Mentoring

4.1 Mentoring Undergraduate Students in the laboratory

Time	**Student name**	**Major**	**Highlights**
May 2026-present	Nina (YingJia) Huang	Biology	*LAS Dean's High Impact Awards for Undergraduate Research*
Oct 2024-presnt	Alison David	Biology	*Sui Tong Chan Fung Fund Summer Internship, 2025 and 2026*
Sep 2024-presnt	Isaac Wilhelm	Biology	
Jan 2023-Dec 2024	Natalie Kaufmann	Genetics	*LAS Dean's High Impact Awards for Undergraduate Research*
June -July 2023	Nasra Osman	ISU LSAMP/RISEUP	
Jan 2023-May 2024	Hyunho Choi	Biology	*LAS Dean's High Impact Awards for Undergraduate Research; Attending graduate school at ISU*
Jan 2023- May 2024	Sophia Kaissi	Biology	

Jan 2023-May 2023	Mandy Chau	Biology	*Attending Saint Louis University, School of Medicine*
Jan 2020-May 2023	Olivia Whitham	Genetics	*Conducting clinical research*
Aug 2021-May 2022	Kaila Savage	Genetics	*Pursuing PsyD at Midwestern University*
Jan 2021-May 2022	Haley Dostalik	Biology/BCB	*Attending graduate school at MD Anderson Cancer Center*
Jan 2018-May 2019	Sean McLaughlin	Genetics	*Attended graduate school at ISU*
Jan 2017-May 2017	Rachel Powell	Genetics	
2015-2016	Rebecca Schulte	Biology	
2012-2014	Abbagail Johnson	Biology	*Attended graduate school*

4.2 Mentoring Graduate Students during Rotations

Nov 2024-Dec 2024	Matthew Lettow	Ph.D. Candidate, IGG
Oct 2024-Dec 2024	Hyunho Choi	Ph.D. Candidate, IPB
Mar 2024-May 2024	Fariha Tasnim	Ph.D. Candidate, IPB
Oct 2023-Dec 2023	Elakkiya Amburose Venkatesan	Ph.D. Candidate, IPB
Aug 2023-Oct 2023	Saumyapria Rana	Ph.D. Candidate, IPB
Aug 2022-Oct 2022	Clarice Gonzales	Ph.D. Candidate, IPB
Aug 2022-Oct 2022	Letong Yin	Ph.D. Candidate, IGG
Aug 2021-Oct 2021	Saiful Islam	Ph.D. Candidate, IPB
Jan 2021-Mar 2021	Craig Cowling	Ph.D. Candidate, IPB
Oct 2019-Dec 2019	Kaitlin Higgins	Ph.D. Candidate, IGG/P3
Aug 2019-Oct 2019	Sean McLaughlin	M.S. Candidate, IGG
Aug 2018-Oct 2018	Tanner Cook	Ph.D. Candidate, IPB/P3

4.3 Mentoring Postdoctoral Fellows

Dec 2024-present Haiyan Wang

Oct 2022-present Jie Tang

4.4 Co-Mentoring Postdoctoral Fellows

Aug 2024-present	Min-May Wong		
Jan 2019-July 2026	Ping Wang	Aug 2026-present	Assistant Professor at LSU
Nov 2020-Oct 2024	Kai Wang		
July 2019-June 2020	Alfredo Kono		

4.5 Mentoring Research Staff

July 2021-July 2022 Parker Bartz

4.6 Mentoring and Co-Mentoring High School Science Teachers

Mentoring:

June 2026- July 2026	Hannah Horton	Southeast Polk Community School, Iowa
June 2025-July 2025	Olivia Chamberlain	The Des Moines Public Schools, Des Moines, IA

Co-Mentoring:

June 2022-July 2022	Zonelle Hanley	Florida A&M University Developmental Research School
June 2021-July 2021	Todd Boender	West Central Valley Middle School, Redfield, IA
June 2017-July 2017	Nick Smith	Eagle Grove High School, Eagle Grove, IA
June 2014-July 2014	Brent Chambers	Bellevue Community Schools, Bellevue. IA
June 2010-July 2010	Alicia Schiller	Central Lee High School, Donnellson, IA

5 Academic Advising

Graduate Programs

Interdepartmental Plant Biology (IPB)

Interdepartmental Genetics and Genomics (IGG)

Molecular, Cellular and Developmental Biology (MCDB)

5.1 M.S. Program of Study Committees

Chair/Major Professor

Aug 2022-March 2026	Terryn Sears	Genetics and Genomics

Member of Program of Study Committee

April 2022-Nov 2024	Allison Triebe	Genetics and Genomics
Sep 2023-Sep 2025	Panchali Chakraborty	Plant Biology
Sep 2023-July, 2025	Maryam Almazrouei	Plant Biology

5.2 Ph.D. Program of Study Committees

Chair/Major Professor

Dec 2023-present	Saumyapriya Rana	Plant Biology
Dec 2024-present	Matthew Lettow	Genetics and Genomics
Dec 2024-present	Hyunho Choi	Plant Biology

Member of Program of Study Committee

March 2026-July 2026	Kavi Raj Acharya	Genetics and Genomics
Aug 2025-present	Elakkiya Amburose Venkatesan	Plant Biology
Aug 2025-present	Yuwei Zhang	MCDB
Nov 2024-present	Damilare Dabiri	BBMB
Sep 2024-present	Huyu Liu	Genetics and Genomics
May 2024-present	Clarice Gonzales	Plant Biology
Jan 2024-April-2026	Saiful Islam	Plant Biology
Aug 2023-present	James Preston	Genetics and Genomics

Mar 2023-present	Megan DeTemple	Plant Biology
Mar 2023-April 2025	Haris Variz	Plant Biology
Sep 2021-Nov 2025	Ekkachai Khwanbua	Plant Pathology and Microbiology
June 2022-present	Sumin Na	Chemistry

6 Service

6.1 Institutional Service

Sep 2026-Mar 2027	GDCB faculty search committee
Dec 2023-Mar 2024	GDCB faculty search committee
2020-present	GDCB departmental Seminar Committee
Jan 2022-present	IPB graduate program Admission Committee
Jan 2022-present	IPB graduate program Curriculum Committee
Nov 2024-present	MCDB graduate program Admission Committee
Jan 2022-present	Faculty advisor for the student-run Genetics Club
Sep 2026	Faculty representative at FACUL-TEA, for interactions with undergraduate students
Nov 2024	Faculty representative at FACUL-TEA, for interactions with undergraduate students
Sep 2024	Faculty representative at FACUL-TEA, for interactions with undergraduate students
Fall 2026	Participated in “Meet With a Professor “program
Fall 2025	Participated in “Meet With a Professor “program
Fall 2024	Participated in “Meet With a Professor “program
April 2025	Judge for the Interdisciplinary Biological Sciences Symposium Iowa State University

April 2024	Judge for the Interdisciplinary Biological Sciences Symposium Iowa State University
March 2026	Judge for State Science Technology Fair of Iowa
March 2025	Judge for State Science Technology Fair of Iowa
March 2023	Judge for State Science Technology Fair of Iowa
Feb 2023	Graduate student candidate interview of Genetics and Genomics program
2022-May 2023	Faculty mentor for Graduate Student and Postdoc Organization (GSPO)
2020-May 2022	Organizer and host of the GDCB Graduate Student/Postdoc/Staff Seminar
Feb 2022	Graduate student candidate interview of Genetics and Genomics program
Jan 2022	Faculty representative at orientation for International Students and Scholars Office (ISSO)
Feb 2021	Graduate student candidate interview of Plant Biology program
Jan 2020	Judge for Three Minute Thesis (3MT) competition

6.2 Professional Service

2025-present	PAG Workshop organizer, "Genomics for Plant Receptor Kinase and Hormone Signaling". PAG: International Plant and Animal Genome Conference
March 2026-present	Associate editor, Frontiers in Plant Science-Cell Biology
2026	Reviewer and panel member, USDA-NIFA, Physiology of Agricultural Plants
2025-2026	Guest Editor**,** Plants, on the special issues "Receptor Kinase Mediated Signaling in Plants"
2025	Reviewer and panel member, NSF-MCB-Genetic Mechanisms
2024	Reviewer and panel member, NIH R01, Study section CSRS (Cell Signaling and Regulatory Systems)
2023	Reviewer and panel member, NSF-IOS Plant Genome Research Program
2022	Reviewer, The Syngenta-Plant Science Center (Zurich-Basel) Fellowship

2023-2024 Handling Editor, Frontiers in Plant Science

2021-2022 Topic Editor**,** Frontiers in Plant Science, on an article collection of "Function and Mechanisms of Feronia Receptor Kinase"

2020-present Manuscript Reviewer for Scientific Journals

Year	**Journal**
2026	Cell
2026	Nature Communications
2026	New Phytologist
2026	The Plant Cell
2026	Plant, Cell and Environment
2025	Plant Physiology
2025	Science Advances
2025	JIPB
2024	Cell Reports
2024	Journal of Experimental Botany
2024	iScience
2024	The Plant Cell
2024	New Phytologist
2024	New Phytologist
2024	New Phytologist
2023	The Plant Cell
2023	New Phytologist
2023	Cell Reports
2023	The Plant Journal
2023	Trends in Plant Science
2022	Molecular Horticulture
2022	Plant Biotechnology Journal
2022	Cell Reports
2022	New Phytologist
2021	Plant Biotechnology Journal
2021	Science Advances
2021	Nature Plants
2021	Plant Physiology
2021	PLOS One
2020	PLOS Genetics
2020	Molecular Plant-Microbe Interactions
2020	Plant Cell Reports
2020	Nature Plants