

Hongqing (Michelle) Guo

Assistant Professor

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<https://scholar.google.com/citations?user=luA7XeEAAAAJ&hl=en&oi=ao>

Education

Iowa State University

- Ph.D. in Interdepartmental Genetics and Genomics, 2019

Beijing Normal University, Beijing, China

- M.S. in Plant Biology, 1991
- B.S. in Biology, 1988

Professional Positions

Iowa State University

- Jan. 2022-present: Assistant Professor, GDCB
- Aug. 2019-Dec. 2021: Adjunct Assistant Professor, GDCB
- Aug. 2013-May 2019: Ph.D. Student in Interdepartmental Genetics and Genomics
- Aug. 2004-Aug. 2019: Assistant Scientist, GDCB

Johnson & Johnson, PRD, San Diego, California

- 1995-2004: Senior Associate Scientist, Gene Discovery and Pain & Related Disorders

The Scripps Research Institute, La Jolla, California

- 1992-1995: Research Technician, Department of Cell Biology

The Institute of Zoology, Chinese Academy of Sciences, Beijing, China

- 1991-1992: Research Associate, Department of Endocrinology

The Institute of Genetics, Chinese Academy of Sciences, Beijing, China

- 1989-1991: M.S. Student

Beijing Normal University

- 1984-1988: Undergraduate Student

Teaching

- Fall 2021: Faculty in class for PLBIO 696-Research Seminar for IPB graduate students
- Fall 2021: Mentor for Gen 499-Genetics Research for undergraduate students

- Fall 2021: Instructor for Gen 409-Molecular Genetics
- Spring 2021: Instructor for Gen 409-Molecular Genetics
- Spring 2021: Mentor for Gen 499 Genetics Research for undergraduate students
- Fall 2020: Instructor for Gen 409-Molecular Genetics
- Spring 2020: Instructor for GDCB 511-Molecular Genetics
- Fall 2019: Instructor for Gen 409-Molecular Genetics
- Fall 2017: TA for Biol 313L-Principals of Genetics Lab
- Fall 2017: Guest lecturer of BCB/GDCB/ME 585
- Fall 2016: Substitute lecturer of Biol 101-Introduction to Biology
- Fall 2014: Instructor of Biol 33-Plant Physiology
- Spring 2014: Instructor of Biol 155-Human Biology (online teaching)
- Spring 2013: Instructor of Biol 155-Human Biology (online teaching)
- Spring 2012: Instructor of Biol 155-Human Biology (online teaching)
- Fall 2012: Instructor of Biol 330/GDCB513-Plant Physiology and Plant Metabolism
- Spring 2011: Instructor of Biol 155-Human Biology (online teaching)
- Fall 2011: Instructor of Biol 155-Human Biology (online teaching)
- Spring 2010: Instructor of Biol 155-Human Biology (online teaching)
- Fall 2010: Instructor of Biol 155-Human Biology (online teaching)
- Fall 2009: Instructor of Biol 155-Human Biology (online teaching)
- 2004-2008: TA Instructor of Biol 313L-Principals of Genetics Lab

Semester, year	Course #	Course title	Enrollment	Percent taught	Instructor (Q1)	Course (Q2)	Dept. Ave (Q1)	Dept. Ave (Q2)
2004-2008	Biol 313L	Principals of Genetics Lab		TA instructor	NA	NA	NA	NA
Fall 2009	Biol 155 XW	Human Biology	~60	100%	NA	NA	NA	NA
Spring 2010	Biol 155 XW	Human Biology	~60	100%	NA	NA	NA	NA
Fall 2010	Biol 155 XW	Human Biology	62	100%	3.73	3.52	NA	NA
Spring 2011	Biol 155 XW	Human Biology	~60	100%	3.48	3.38	NA	NA
Fall 2011	Biol 155 XW	Human Biology	43	100%	3.66	3.39	NA	NA
Spring 2012	Biol 155 XW	Human Biology	58	100%	3.57	3.44	NA	NA
Spring 2013	Biol 155 XW	Human Biology	77	100%	3.57	3.25	3.62	3.49
Spring 2014	Biol 155 XW	Human Biology	66	100%	3.59	3.26	3.36	3.18
Fall 2012	Biol 330/GDCB513	Plant Physiology/Plant Metabolism	11	50%	4.08	3.25	NA	NA
Fall 2014	Biol 330	Plant Physiology	10	100%	3.88	3.5	3.59	3.48
Fall 2017	Biol 313L	Principles of Genetics Lab	45	40%	NA	NA	NA	NA

Fall 2019	Gen 409	Molecular Genetics	35	50%	4.56	3.96	NA	4.04
Spring 2020	GDCB 511	Molecular Genetics	29	50%	3.97*	3.86	NA	NA
Fall 2020	Gen 409	Molecular Genetics	44	50%	4.4*	4.38	NA	4.01
Spring 2021	Gen 409	Molecular Genetics	26	50%	4.51*	4.55		
Fall 2021	Gen 409	Molecular Genetics	40	50%				
Fall 2021	PLBio 696	Research Seminar	23	100%				

*Average of three categories regarding instructor during Covid-19 pandemic.

Professional Activities

Topic Editor for Frontiers in Plant Sciences, organizing an article collection on Function and Mechanisms of Feronia Receptor Kinase, 2021

Reviewer for Peer-reviewed Journals

- 2021: Plant Biotechnology
- 2021: Science Advances
- 2021: Plant Physiology
- 2021: Nature Plants
- 2021: PLOS ONE
- 2020: Frontiers in Plant Science
- 2020: Plant Communications
- 2019: Plant Biotechnology
- 2019: aBiotech
- 2019: BMC Biology
- 2019: Current Biology
- 2019: The Plant Cell
- 2019: Molecular Plant-Microbe Interactions
- 2018: PLOS Genetics
- 2018: The Plant Cell
- 2018: PNAS
- 2017: PLOS Genetics
- 2017: Plant Biotechnology
- 2017: PLOS One
- 2016: Plant Cell Reports

Honors and awards

- PI of Seed Grant from ISU Crop Bioengineering Center (CBC), with co-PIs Erik Vollbrecht and Yanhai Yin. “Precise Genome Editing to Study FERONIA Receptor Kinase in Salt Tolerance in Maize”.
- 2010: Outstanding Research Award for P&S Staff, College of Liberal Arts & Science, ISU
- 1984-1988: Undergraduate Fellowship, Beijing Normal University, Beijing, China

Selected Talks

- EMBO Workshop “Target of rapamycin (TOR) signaling in photosynthetic organisms”, October 2021

Invited Talks

- PLPM departmental seminar speaker, September, 2019
- GDCB research day speaker, October, 2019
- GDCB departmental seminar speaker, September, 2020

Institutional Service

- GDCB seminar committee
- Organizer and host of the GDCB Graduate Student/Postdoc/Staff Seminar
- Graduate student recruitment of Interdepartmental Plant Biology program
- Graduate student recruitment of Interdepartmental Genetics and Genomics program
- Mentor for RET (Research Experience for Teachers) program
- Virtual Visiting Professor Program, an outreach program for high school Biology/Life Sciences education

Patents

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

Publications

39. Wang P, Clark MC, Nolan TM, Song G, Bartz PM, Liao CY, Montes C, Bassham DC, Walley JW, Yin Y*, **Guo H***. 2021. Integrated Omics Reveal Novel Functions and Underlying Mechanisms of FERONIA Receptor Kinase in *Arabidopsis thaliana*. In revision (*co-corresponding author)
38. 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. **The Plant Cell**. 0:1-23
37. 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
36. Montes C, Liao C, Nolan TM, Song G, Clark NM, **Guo H**, Bassham DC, Yin Y, Walley JW. 2021. Interplay between brassinosteroids and TORC signaling in Arabidopsis revealed by integrated multi-dimensional analysis. **BioRxiv**
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 Brassinosteroid 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.