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**ASSISTANT PROFESSOR**  
 Department of Biological Sciences  
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## **EDUCATION**

Ph.D. (2010)	Department of Plant Cellular & Molecular Biology, Ohio State University, Columbus, Ohio
B.S. (2004)	College of Biological Sciences, Wuhan University, China

## **PROFESSIONAL ACTIVITIES**

2017-	Assistant Professor, Department of Biological Sciences, Mississippi State University
2016	Research Scientist, Department of Molecular Genetics, Ohio State University
2010-2016	Postdoctoral Researcher, Department of Molecular Genetics, Ohio State University

### Journal Reviewer (20 Journals)

Frontiers in Microbiology, Gene, International Journal of Molecular Sciences, Journal of Virology, Molecular Plant-Microbe Interactions, Molecular Plant Pathology, Phytopathology, Plant Cell Reports, Plant Methods, Plant Molecular Biology, Plant Physiology, Plant Science (Elsevier), Plants, PLoS ONE, PLoS Pathogens, RNA Biology, Scientific Reports, Virology, Virus Research, Viruses.

### Grant Reviewer

National Science Foundation (GRFP), USA; National Science Centre, Poland; Ohio State University

### Service

Member of Faculty Search Committee (Developmental Biology and Microbiology) and Graduate Committee, Department of Biological Sciences, Mississippi State University.

## **RESEARCH FUNDING**

**NOTE:** all the budgets include direct and indirect costs.

4. NIH (1R15GM135893-01A1): Understanding the regulatory role of a eukaryotic transcription factor in RNA-templated transcription catalyzed by DNA-directed RNA polymerase II, PI with a budget of \$410,855. (08/2020 to 07/2023)
3. NSF (MCB-1906060): Processing-body dynamics and mRNA regulation in plants, CoPI. Total project budget: \$1,200,000; Wang lab budget: \$220,000. (09/2019 to 08/2022)
2. NSF Plant Genome Research Project (IOS-1564366): Exploitation of Genetics and Epigenetic Variation in the Regulation of Tomato Fruit Quality Traits, CoPI. Total project budget: \$5,018,470; Wang lab budget: \$492,454. (01/2017 to 04/2021)
1. Mississippi State University College of Arts and Sciences Strategic Research Initiatives (PI with a budget of \$8,564). (02/2018 to 12/2018)

## **AWARDS**

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| 3. 2019 | First Place Mentor Award at Annual Undergraduate Student Research Symposium, Mississippi State University, MS    |
| 2. 2010 | Best poster presentation at The 3 <sup>rd</sup> International Conference on Plant Vascular Biology, Columbus, OH |
| 1. 2007 | Excellence in PMBB graduate study fellowship, PMBB program, Ohio State University                                |

## TEACHING EXPERIENCE

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2020 Fall	BIO8990 (Gene Regulation), Mississippi State University
2020 Spring	BIO4433/6433 (Virology), Mississippi State University
2017-2019	BIO2113 (Plant Biology), Mississippi State University
2015, 2016	Guest lecturer, Molecular Genetics 5607 (Plant Cell Biology), Ohio State University
2015	Guest lecturer, Molecular Virology, Immunology & Medical Genetics 7741, Ohio State University
2013	Lecturer for High School Biology Group, Columbus North International School, Columbus, OH
2013	Guest lecturer, Molecular Genetics 3300 (Plant Biology), Ohio State University
2012-2013	UAHS Honors Science Research Mentor for Upper Arlington High School, Columbus OH

## PUBLICATIONS

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20. Dissanayaka Mudiyanse SD, **Wang Y<sup>†</sup>**. Fluorescein-based electrophoretic mobility shift assay. Invited submission to the special issue “Viroids: Methods and Protocols”, *Methods in Molecular Biology*, *In press*. (<sup>†</sup>: *The corresponding author*)
19. Smith HN, Ma J, **Wang Y<sup>†</sup>**. Analysis on RNA motif-based RNA trafficking in plants. Invited submission to the special issue “Viroids: Methods and Protocols”, *Methods in Molecular Biology*, *In press*. (<sup>†</sup>: *The corresponding author*)
18. **Wang Y<sup>†</sup>**, Liu B<sup>†</sup>. 2020. Circular RNA in diseased heart. ***Cells*. 9:1240.** (<sup>†</sup>: *Corresponding authors*)
17. Dissanayaka Mudiyanse SD, **Wang Y<sup>†</sup>**. 2020. Evidence supporting that RNA polymerase II catalyzes de novo transcription using potato spindle tuber viroid circular RNA templates. ***Viruses*. 12:371.** (<sup>†</sup>: *The corresponding author*)
16. Jiang J, Ma J, Liu B<sup>†</sup>, **Wang Y<sup>†</sup>**. 2019. Combining a simple method for DNA/RNA/Protein co-purification and Arabidopsis protoplast assay to facilitate viroid research. ***Viruses*. 11:324.** (<sup>†</sup>: *Corresponding authors*)
15. Dissanayaka Mudiyanse SD, Qu J, Tian N, Jiang J, **Wang Y<sup>†</sup>**. 2018. Potato spindle tuber viroid RNA-templated transcription: factors and regulation. ***Viruses*. 10:503.** (<sup>†</sup>: *The corresponding author*)
14. Jiang J, Smith HN, Ren D, Dissanayaka Mudiyanse SD, Dawe AL, Wang L, **Wang Y<sup>†</sup>**. 2018. Potato spindle tuber viroid modulates its replication through a direct interaction with a splicing regulator. ***J. Virol.* 92:e01004-18.** (<sup>†</sup>: *The corresponding author; Highlighted in Journal's "Spotlight"*)
13. Takeda R<sup>†</sup>, Zirbel CL, Leontis NB, **Wang Y<sup>†</sup>**, Ding B. 2018. Allelic RNA motifs in regulating systemic trafficking of potato spindle tuber viroid. ***Viruses*. 10:160.** (<sup>†</sup>: *Corresponding authors*)
12. **Wang Y<sup>†</sup>**, Zirbel CL<sup>†</sup>, Leontis NB<sup>†</sup>, Ding B. 2018. RNA three-dimensional structural motifs as a critical constraint of viroid RNA evolution. ***PLOS Pathog.* 14:e1006801.** (<sup>†</sup>: *Corresponding authors*)
11. Zheng Y<sup>§</sup>, Ding B, Fei Z<sup>†</sup>, **Wang Y<sup>§,†</sup>**. 2017. Comprehensive transcriptome analyses reveal tomato plant responses to tobacco rattle virus-based gene silencing vectors. ***Sci. Rep.* 7:7771** (<sup>§</sup>: *Equal contribution; †: Corresponding authors*)
10. Zheng Y<sup>§</sup>, **Wang Y<sup>§,†</sup>**, Ding B, Fei Z<sup>†</sup>. 2017. Comprehensive transcriptome analyses reveal that potato spindle tuber viroid triggers genome-wide changes in alternative splicing, inducible trans-acting activity of phased secondary small interfering RNAs and immune responses. ***J. Virol.* 91:e00247-17** (<sup>§</sup>: *Equal contribution; †: Corresponding authors*)
9. **Wang Y<sup>§,†</sup>**, Qu J<sup>§</sup>, Ji S, Wallace AJ, Wu J, Li Y, Gopalan V, Ding B. A Land Plant-specific Transcription Factor Directly Enhances Transcription of a Pathogenic Noncoding RNA Template by DNA-dependent RNA Polymerase II. ***Plant Cell* 28:1094-1107.** (<sup>§</sup>: *Equal contribution; †: The corresponding author; Journal-Featured Article*)
8. Zheng Y<sup>§</sup>, **Wang Y<sup>§</sup>**, Wu J, Ding B, Fei Z. 2015. A dynamic evolutionary and functional landscape of plant phased small interfering RNAs. ***BMC Biol.* 13:32.** (<sup>§</sup>: *Equal contribution*)
7. Liu N, Wu S, Van Houten J, **Wang Y**, Ding B, Fei Z, Clarke TH, Reed JW, van der Knaap E. 2014. Down-regulation of AUXIN RESPONSE FACTORS 6 and 8 by microRNA167 leads to floral development defects and female sterility in tomato. ***J. Exp. Bot.* 65:2507-2520.**
6. **Wang Y**, Itaya A, Zhong X, Wu Y, Zhang J, van der Knaap E, Olmstead R, Qi Y, Ding B. 2011. Function

- and evolution of a microRNA that regulates a Ca<sup>2+</sup>-ATPase and triggers the formation of phased small interfering RNAs in tomato reproductive growth. **Plant Cell** **23**:3185-3203. (*Journal-Featured Article*)
5. **Wang Y**, Ding B. 2010. Viroids: small probes for exploring the vast universe of RNA trafficking in plants. **J. Integr. Plant Biol.** **52**:28-39.
  4. Ding B, **Wang Y**. 2009. Viroids, uniquely simple and tractable models to elucidate regulation of cell-to-cell trafficking of RNA. **DNA Cell Biol.** **28**:51-56.
  3. Itaya A, Zhong X, Bundschuh R, Qi Y, **Wang Y**, Takeda R, Harris AR, Molina C, Nelson RS, Ding B. 2007. A structured viroid RNA serves as a substrate for dicer-like cleavage to produce biologically active small RNAs but is resistant to RNA-induced silencing complex-mediated degradation. **J. Virol.** **81**:2980-2994. (*Highlighted by Faculty1000 Biology as "Must Read" in 2007*)
  2. **Wang Y**, Zhong X, Itaya A, Ding B. 2007. Evidence for the existence of the loop E motif of Potato spindle tuber viroid in vivo. **J. Virol.** **81**:2074-2077.
  1. Tang XC, He YQ, **Wang Y**, Sun MX. 2006. The role of arabinogalactan proteins binding to Yariv reagents in the initiation, cell developmental fate, and maintenance of microspore embryogenesis in Brassica napus L. cv. Topas. **J. Exp. Bot.** **57**:2639-2650.

### INVITED/SELECTED TALKS

- "Towards the understanding of the simplest yet a sophisticated organism, Potato spindle tuber viroid" at University of Mississippi, Oxford MS, February 2020
- "Applying multiple Omic Analyses to Understand Plant-Viroid Interactions" at the Mississippi IDEa Conference for Biomedical Research, Jackson MS, August 2019
- "RNA 3-dimensional structural motifs as a critical constraint of viroid RNA evolution" at the American Society for Virology Annual Meeting, Minneapolis MN, July 2019
- "Insights into RNA-templated transcription by DNA-dependent RNA polymerase II in plants" at the 30<sup>th</sup> International Conference on Arabidopsis Research, Wuhan China, June 2019
- "Towards the understanding of the simplest yet a sophisticated organism, Potato spindle tuber viroid" at Fujian Agriculture and Forestry University, Fuzhou China, June 2019
- "Towards the understanding of the simplest yet a sophisticated species, Potato spindle tuber viroid" at Mississippi State University, Department of Biochemistry, Molecular Biology, Entomology, & Plant Pathology, College of AG & Life Sciences, Starkville, Mississippi, March 2019
- "Potato spindle tuber viroid modulates its replication through a direct interaction with a splicing regulator" at the American Society for Virology Annual Meeting, Washington D.C., July 2018
- "How does potato spindle tuber viroid interact with the host machinery for replication? -Some recent insights into the mechanism" at Viroid-2018 International Conference, Valencia, Spain, July 2018
- "Applying multiple transcriptome analyses to understand plant-viroid interactions" at the 15<sup>th</sup> Annual conference of the MidSouth Computational Biology and Bioinformatics Society, Starkville, Mississippi, March 2018
- "Solanaceae as a model to explore noncoding RNAs in plants: From evolution dynamics to agricultural importance" at Mississippi State University, Department of Biochemistry, Molecular Biology, Entomology, & Plant Pathology, College of AG & Life Sciences, Starkville, Mississippi, September 2017
- "Novel insights into the infection of a pathogenic non-coding RNA in plants: some recent progress on viroid research" at University of Wisconsin at Madison, Wisconsin Institute for Discovery, Madison, Wisconsin, June 2017
- "Comprehensive genome-wide analyses revealed molecular dynamics underlying plant responses to a pathogenic noncoding RNA" at the American Society for Virology Annual Meeting, Madison, Wisconsin, June 2017
- "RNA 3D motif structure and function: a novel constraint of infectious RNA evolution" at Mississippi State University, Department of Basic Sciences, College of Veterinary Medicine, Starkville, Mississippi, March 2017
- "Novel insights into the infection of a pathogenic non-coding RNA in plants: some recent progress on viroid"

- research" at Wuhan University, Department of Biological Sciences, Wuhan, China, December 2016
- "Solanaceae as a model to explore noncoding RNAs in plants: From evolution dynamics to agricultural importance" at The Chinese Academy of Sciences, Institute of Botany, Beijing, China, November 2016
  - "Plant-Viroid interactions: some recent progress" at Ohio State University, Department of Plant Pathology, Columbus, OH, October 2016
  - "A land plant-specific transcription factor directly enhances DNA-dependent RNA polymerase II transcription on viroid RNA" at The XVII International Society of Molecular Plant-Microbe Interactions Conference, Portland, OR, 2016
  - "New insights into the evolution and function of non-coding RNAs in plants: Solanaceae as a model" at Mississippi State University, Department of Biological Sciences, Starkville, MS, May 2016
  - "A conserved eukaryotic transcription factor is essential for the replication of viroid RNA genome" at The XVI<sup>th</sup> International Congress of Virology Conference, Montreal, Canada, July 2014
  - "New insights into the evolution and function of young miRNAs: Solanaceae as a model" University of Pennsylvania, Plant Biology Community, Philadelphia, PA, April 2013
  - "Evolution of a novel microRNA regulating a Ca<sup>2+</sup> ATPase transporter", Wuhan University, College of Life Sciences, Wuhan, China, December 2009
  - "Function and evolution of a non-conserved microRNA- Science from courtyard" Ohio State University, Kowlett seminar for HCS and Plant Pathology Department, Columbus, OH, November 2009
  - "Host factor-viroid interactions in systemic trafficking" at the American Society for Virology Annual Meeting, Vancouver, Canada, July 2009
  - "Direct Evidence for the existence of Potato spindle tuber viroid loop E motif in vivo" Peking University, College of Life Sciences, Beijing, China, February 2007