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**CRRICULUM VITAE**

**Title:** Professor, Vice director, Institute of Insect Science, Zhejiang University

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**Current position and employment history**

- ◆ 2014.01-present Professor, Institute of Insect Sciences, Zhejiang University, Hangzhou, China
- ◆ 2009.08-2013.12 Principal Investigator, Institute of Insect Sciences, Zhejiang University, Hangzhou, China
- ◆ 2007.08-2009.08 Postdoctoral Research Fellow, Harvard Medical School / Dana-Farber Cancer Institute, Boston, United States
- ◆ 2007.01-2007.07 Postdoctoral Research Fellow, Department of Biological Sciences, National University of Singapore, Singapore
- ◆ 2001.07-2002.07 Research Assistant, Proteomics Centre, Beijing Genomics Institute, Beijing, China

**Education**

- ◆ 2002.07-2007.01: **Ph. D.** Molecular Biology, National University of Singapore, Singapore
- ◆ 1998.09-2001.07: **M. S.** Microbial and Biochemical Pharmaceutical, Shenyang Pharmaceutical University, China
- ◆ 1994.09-1998.07: **B. S.** Microbiology, Hebei University, China

**Major Research Interests**

- ◆ Mechanisms of geminivirus transmission by whiteflies *Bemisia tabaci*
- ◆ Whitefly-plant interactions
- ◆ Whitefly functional genomics

**Publications** (\*Corresponding author)

1. Xia WQ, Liang Y, Chi Y, Pan LL, Zhao J, Liu SS and Wang XW\* (2018) Intracellular trafficking of begomoviruses in the midgut cells of their insect vector. *PLoS Pathogens* 14: e1006866
2. Geng L, Qian LX, Shao RX, Liu YQ, Liu SS and Wang XW\* (2018) Transcriptome profiling of whitefly guts in response to Tomato yellow leaf curl virus infection. *Virology Journal* 15: 14
3. Guo T, Zhao J, Pan LL, Geng L, Lei T, Wang XW and Liu SS (2018) The level of midgut penetration of two begomoviruses affects their acquisition and transmission by two species of *Bemisia tabaci*. *Virology* 515: 66-73

4. Xia WQ, Liang Y, Liu YQ, Liu SS and Wang XW\* (2017) Effects of ubiquitin-proteasome system on Tomato yellow leaf curl virus in whitefly *Bemisia tabaci* (Hemiptera: Aleyrodidae). *Acta Entomologica Sinica* 60: 1411-1419
5. Xia WQ, Wang XR, Liang Y, Liu SS and Wang XW\* (2017) Transcriptome analyses suggest a novel hypothesis for whitefly adaptation to tobacco. *Scientific Reports* 7: 12102
6. Zhu DT, Wang XR, Ban FX, Zou C, Liu SS and Wang XW\* (2017) Methods for the extraction of endosymbionts from the whitefly *Bemisia tabaci*. *Journal of Visualized Experiments* 124: e55809
7. Wei J, He YZ, Guo Q, Guo T, Liu YQ, Zhou XP, Liu SS and Wang XW\* (2017) Vector development and vitellogenin determine the transovarial transmission of begomoviruses. *Proc Natl Acad Sci U S A*. 114: 6746-6751
8. Zhao W, Shi M, Ye XQ, Li F, Wang XW and Chen XX (2017) Comparative transcriptome analysis of venom glands from *Cotesia vestalis* and *Diadromus collaris*, two endoparasitoids of the host *Plutella xylostella*. *Scientific Reports* 7: 1298
9. Li P, Shu YN, Fu S, Liu YQ, Zhou XP, Liu SS and Wang XW\* (2017) Vector and non-vector insect feeding reduces subsequent plant susceptibility to virus transmission. *New Phytologist* 215: 699-710
10. Sun YC, Pan LL, Ying FZ, Li P, Wang XW and Liu SS (2017) Jasmonic acid-related resistance in tomato mediates interactions between whitefly and whitefly-transmitted virus. *Scientific Reports* 7: 566
11. Wang XW\*, Li P and Liu SS (2017) Whitefly interactions with plants. *Current Opinion in Insect Science* 19: 70-75
12. Pan LL, Chen QF, Zhao JJ, Guo T, Wang XW, Hariton-Shalev A, Czosnek H and Liu SS (2017) Clathrin-mediated endocytosis is involved in Tomato yellow leaf curl virus transport across the midgut barrier of its whitefly vector. *Virology* 502: 152–159
13. Klionsky DJ\*, Abdelmohsen K .....Wang XW ..... *et al.* (2016) Guidelines for the use and interpretation of assays for monitoring autophagy (3rd edition). *Autophagy* 12: 1-222
14. Wang ZZ, Shi M, Huang YC, Wang XW, Stanley D and Chen XX (2016) A peptidoglycan recognition protein acts in whitefly (*Bemisia tabaci*) immunity and involves in Begomovirus acquisition. *Scientific Reports* 6: 37806
15. Wang LL, Wang XR, Wei XM, Huang H, Wu JX, Chen XX, Liu SS and Wang XW\* (2016) The autophagy pathway participates in resistance to *Tomato yellow leaf curl virus* infection in whiteflies. *Autophagy* 12: 1560-1574
16. Zhu DT, Xia WQ, Rao Q, Liu SS, Ghanim M and Wang XW\* (2016) Sequencing and comparison of the Rickettsia genomes from the whitefly *Bemisia tabaci* Middle East Asia Minor I. *Insect Science* 23: 531-542
17. Wang HL, Zhang Z, Bing XL, Liu YQ, Liu SS and Wang XW\* (2016) A complete mitochondrial DNA genome derived from a Chinese population of the *Bemisia afer* species complex (Hemiptera: Aleyrodidae). *Mitochondria DNA* 27: 1-2
18. Wang HL, Cui XY, Wang XW, Liu SS, Zhang ZH and Zhou XP (2016) First report of Sri Lankan cassava mosaic virus infecting cassava in Cambodia. *Plant Disease* 100: 1029
19. Chu ZJ, Wang YJ, Ying SH, Wang XW\* and Feng MG (2016) Genome-wide host-pathogen interaction unveiled by transcriptomic response of diamondback moth to fungal infection.

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20. Liu SM, Li J, Zhu JQ, Wang XW, Wang CS, Liu SS, Chen XX and Li S (2016) Transgenic plants expressing the AaIT/GNA fusion protein show increased resistance and toxicity to both chewing and sucking pests. *Insect Science* 23: 265-276
21. Shan HW, Zhang CR, Yan TT, Tang HQ, Wang XW, Liu SS and Liu YQ (2016) Temporal changes of symbiont density and host fitness after rifampicin treatment in a whitefly of the *Bemisia tabaci* species complex. *Insect Science* 23: 200-214
22. Wang B, Wang LL, Chen FY, Yang XL, Ding M, Zhang ZK, Liu SS, Wang XW and Zhou XP (2016) MicroRNA profiling of the whitefly *Bemisia tabaci* Middle East-Aisa Minor I following the acquisition of *Tomato yellow leaf curl China virus*. *Virology Journal* 13: 20
23. Wang HL, Xiao N, Yang J, Wang XW, Colvin J and Liu SS (2016) The complete mitochondrial genome of *Bemisia afer* (Hemiptera: Aleyrodidae). *Mitochondria DNA* 27: 98-99
24. Wei J, Wang XW and Liu SS (2015) Research progress in geminivirus transmission by whiteflies (Hemiptera: Aleyrodidae) and the underlying molecular mechanisms. *Acta Entomological Sinica* 58: 445-453
25. Zhang CR, Shan HW, Wang XW, Liu YQ and Liu SS (2015) Differential temporal changes of primary and secondary bacterial symbionts and whitefly host fitness following antibiotic treatments. *Scientific Reports* 5: 15898
26. Rollat-Farnier P, Santos-Garcia D, Rao Q, Sagot M, Silva F, Henri H, Zchori-Fein E, Latorre A, Moya A, Barbe V, Liu SS, Wang XW, Vavre F and Mouton L (2015) Two host clades, two bacterial arsenals: evolution through gene losses in facultative endosymbionts. *Genome Biology and Evolution* 7: 839-855
27. Xu HX, Hong Y, Zhang MZ, Wang YL, Liu SS and Wang XW\* (2015) Transcriptional responses of invasive and indigenous whiteflies to different host plants reveal their disparate capacity of adaptation. *Scientific Reports* 5: 10774
28. Rao Q, Rollat-Farnier P, Zhu DT, Santos-Garcia D, Silva F, Moya A, Latorre A, Klein C, Vavre F, Sagot M, Liu SS, Mouton L and Wang XW\* (2015) Genome reduction and potential metabolic complementation of the dual endosymbionts in the whitefly *Bemisia tabaci*. *BMC Genomics* 16: 226
29. Jiu M, Li JM, Gao XL, Wang LJ, Wang XW and Liu SS (2015) Identification and characterization of two phospholipid hydroperoxide glutathione peroxidase genes from the Mediterranean species of the whitefly *Bemisia tabaci* complex. *Archives of Insect Biochemistry and Physiology* 89: 54-67
30. Gao XL, Li JM, Xu HX, Jiu M, Liu SS and Wang XW\* (2015) Cloning of a putative extracellular Cu/Zn superoxide dismutase and functional differences of superoxide dismutases in invasive and indigenous whiteflies. *Insect Science* 22: 52-64
31. Wei J, Zhao JJ, Zhang T, Li FF, Ghanim M, Zhou XP, Ye GY, Liu SS and Wang XW\* (2014) Specific cells in the primary salivary glands of the whitefly *Bemisia tabaci* control retention and transmission of begomoviruses. *Journal of Virology* 88: 13460-13468
32. Bing XL, Xia WQ, Gui JD, Yan GH, Wang XW and Liu SS (2014) Diversity and evolution of the Wolbachia endosymbionts of *Bemisia* (Hemiptera: Aleyrodidae) whiteflies. *Ecology and Evolution* 4: 2714-2737
33. Luan JB; Wang XW; Colvin J; Liu SS. Plant-mediated whitefly-begomovirus interactions: research progress and future prospects. *Bulletin of Entomological Research* 104: 267-276
34. Wang HL, Yang J, Boykin LM, Zhao QY, Wang YJ, Liu SS, Wang XW\* (2014) Developing conversed microsatellite markers and their implications in evolutionary analysis of the *Bemisia tabaci* complex. *Scientific Reports* 4: 6351
35. Wang LL, Wei XM, Xu HX, Zhou XP, Liu SS and Wang XW\* (2014) Expression and functional characterization of a soluble form of *Tomato yellow leaf curl virus* coat protein. *Pest Management Sciences* 70: 1624 - 1631

36. Ye XD, Su YL, Zhao QY, Liu SS, Wang XW\* (2014) Transcriptomic analyses reveal the adaptive features and biological differences of guts from two invasive whitefly species. ***BMC Genomics*** 15: 370
37. Zhang CR, Zhang S, Xia J, Li FF, Xia WQ, Liu SS and Wang XW\* (2014) The immune strategy and stress response of the Mediterranean species of the *Bemisia tabaci* complex to an orally delivered bacterial pathogen. ***PLoS ONE*** 9: e94477
38. Luan JB, Wang YL, Wang J, Wang XW\* and Liu SS (2013) Detoxification activity and energy cost is attenuated in the whiteflies feeding on begomovirus-infected tobacco plants. ***Insect Molecular Biology*** 22: 597-607
39. Xia J, Zhang CR, Zhang S, Li FF, Feng MG, Wang XW\* and Liu SS (2013) Analysis of whitefly transcriptional responses to *Beauveria bassiana* infection reveals new insights into insect-fungus interactions. ***PLoS ONE*** 8: e68185
40. Wang LL, Huang H, Zhang CR, Xia J, Liu SS and Wang XW\* (2013) Cloning and functional characterization of c-Jun NH2-terminal kinase from the Mediterranean species of the whitefly *Bemisia tabaci* complex. ***International Journal of Molecular Sciences*** 14: 13433-13446
41. Wang HL, Yang J, Boykin L, Zhao QY, Li Q, Wang XW\* and Liu SS (2013) The first insight into the characteristics and expression profiles of the mitochondrial genome for the Mediterranean species of the *Bemisia tabaci* species complex. ***BMC Genomics*** 14: 401
42. Su YL, He WB, Wang J, Li JM, Wang XW\* and Liu SS (2013) Selection of endogenous reference genes for gene expression analysis in the whitefly *Bemisia tabaci*. ***Journal of Economic Entomology*** 106: 1446-1455
43. Wang YL, Wang YJ, Luan JB, Yan GH, Liu SS and Wang XW\* (2013) Analysis of the transcriptional differences between indigenous and invasive whiteflies reveals possible mechanisms of whitefly invasion. ***PLoS ONE*** 8: e62176
44. Gao XL, Li JM, Wang YL, Jiu M, Yan GH, Liu SS and Wang XW\* (2013) Cloning, expression and characterization of mitochondrial manganese superoxide dismutase from the whitefly, *Bemisia tabaci*. ***International Journal of Molecular Sciences*** 14: 871-887
45. Bing XL, Ruan YM, Rao Q, Wang XW\* and Liu SS (2013). Diversity of secondary endosymbionts among different putative species of the whitefly, *Bemisia tabaci*. ***Insect Science*** 20: 194-206
46. Bing XL, Yang J, Zchori-Fein E, Wang XW and Liu SS (2013) Characterization of a newly discovered symbiont in the whitefly *Bemisia tabaci* (Hemiptera: Aleyrodidae). ***Applied and Environmental Microbiology*** 79: 569-575
47. Wang XW\*, Zhao QY, Luan JB, Wang YJ, Yan GH and Liu SS (2012) Analysis of a native whitefly transcriptome and its sequence divergence with two invasive whitefly species. ***BMC Genomics*** 13: 529
48. Rao Q, Wang S, Zhu DT, Wang XW\* and Liu SS (2012) Draft genome sequence of "*Rickettsia* sp. strain MEAM1", isolated from the whitefly, *Bemisia tabaci*. ***Journal of Bacteriology*** 194: 4741-4742
49. Rao Q, Wang S, Su YL, Bing XL, Liu SS and Wang XW\* (2012) Draft genome sequence of "*Candidatus Hamiltonella defensa*", an endosymbiont of the whitefly, *Bemisia tabaci*. ***Journal of Bacteriology*** 194: 3558
50. Su YL, Li JM, Ye XD, Wang XW\* and Liu SS (2012) Transcriptomic analysis of the salivary glands of an invasive whitefly. ***PLoS ONE*** 7: e0039303
51. Liu SS, Walling LL and Wang XW\* (2012) Special issue introduction-The whitefly *Bemisia tabaci* species complex and begomoviruses: research progress and future prospects. ***Journal***

- of Integrative Agriculture* 11: 171-175
52. Li FF, Xia J, Li JM, Liu SS and Wang XW\* (2012) p38 MAPK is a component of the signal transduction pathway triggering cold stress response in the MED cryptic species of *Bemisia tabaci*. *Journal of Integrative Agriculture* 11: 302-311
  53. Wang XW\*, Luan JB, Li JM, Su YL, Xia J and Liu SS (2011) Transcriptome analysis and comparison reveal divergence between two invasive whitefly cryptic species. *BMC Genomics* 12: 458
  54. Li JM, Su YL, Gao XL, He J, Liu SS and Wang XW\* (2011) Molecular characterization and oxidative stress response of an intracellular Cu/Zn superoxide dismutase (CuZnSOD) of the whitefly, *Bemisia tabaci*. *Archives of Insect Biochemistry and Physiology* 77: 118-133 IF: 1.515
  55. Luan JB, Li JM, Varela N, Wang YL, Li FF, Bao YY, Zhang CX, Liu SS and Wang XW\* (2011) Global analysis of the transcriptional response of whitefly to *Tomato yellow leaf curl China virus* reveals their relationship of coevolved adaptations. *Journal of Virology* 85: 3330-3340 (Cover article)
  56. Li JM, Ruan YM, Li FF, Liu SS and Wang XW\* (2011) Gene expression profiling of the whitefly (*Bemisia tabaci*) Middle East – Asia Minor 1 feeding on healthy and *Tomato yellow leaf curl China virus*-infected tobacco. *Insect Science* 18: 11-22
  57. Wang XW\*, Luan JB, Li JM, Bao YY, Zhang CX and Liu SS. (2010) *De novo* characterization of a whitefly transcriptome and analysis of its gene expression during development. *BMC Genomics* 11: 400
  58. Peng J, Yuan Q, Lin B, Panneerselvam P, Wang XW, Ho B and Ding JL (2010) SARM inhibits both TRIF- and MyD88-mediated AP-1 activation. *European Journal of Immunology* 40: 1738-1747
  59. Popov S, Mirshahid S, Essono S, Song R, Wang XW and Ruprecht RM (2009) Generation of recombinant vaccinia viruses via green fluorescent protein selection. *DNA and Cell Biology* 28: 103-108
  60. Wang XW, Tan, BZ, Sun M, Ho B and Ding JL (2008) Thioredoxin-like 6 protects retinal cell line from photooxidative damage by upregulating NF- $\kappa$ B activity. *Free Radical Biology & Medicine* 45: 336-344
  61. Loh WC<sup>#</sup>, Wang XW<sup>#</sup>, Bui TH, Ho B and Ding JL (2008) SARM: a novel Toll-like receptor adaptor, is functionally conserved from arthropod to human. *Molecular Immunology* 45: 1732-1742 <sup>#</sup>equal contribution
  62. Fan ZH<sup>#</sup>, Wang XW<sup>#</sup>, Lu JH, Ho B and Ding JL (2008) Elucidating the function of an ancient NF- $\kappa$ B p100 homologue, *CrRelish*, in antibacterial defense. *Infection & Immunity* 76: 664-670 <sup>#</sup>equal contribution
  63. Wang XW, Liou YC, Ho B and Ding JL (2007) An evolutionarily conserved 16 kDa thioredoxin is an antioxidant which regulates the NF- $\kappa$ B signaling pathway. *Free Radical Biology & Medicine* 42: 247-259
  64. Wang XW, Tan NS, Ho B and Ding JL (2006) Evidence for the ancient origin of the NF- $\kappa$ B/I $\kappa$ B cascade: Its archaic role in pathogen infection and immunity. *Proc Natl. Acad. Sci. (USA)* 103: 4204-4209

### Teaching Activity

- ◆ Instructor for “Plant Protection” from 2016-2018
- ◆ Instructor for “English for Science and Technology” from 2015-2018

- ◆ Instructor for “Current Advances in Entomology” from 2010-2018
- ◆ Supervised 7 PhD and 10 MSc students from 2009 to 2018

### **Societies and Professional Activities**

- ◆ Editorial Board Member for *Bulletin of Entomological Research*
- ◆ Editorial Board Member for *Scientific Reports* (Nature Publishing Group)
- ◆ Editorial Board Member for *PLoS ONE*
- ◆ Editorial Board Member for *Journal of Insect Science*
- ◆ Guest Editor, *Bemisia* special issue of *Journal of Integrative Agriculture* (2012, 11:2)
- ◆ Member of The Entomological Society of China
- ◆ Member of the American Society for Microbiology

### **Honors and Awards**

- ◆ 2014 Distinguished Young Scholar of Zhejiang Province, China
- ◆ 2012 New Century Excellent Talents in University, Ministry of Education, China
- ◆ 2012 Excellent Teacher Award, College of Agriculture and Biotechnology, Zhejiang University
- ◆ 2010 Qianjiang Talents, Zhejiang Province
- ◆ 2007-2009 Postdoctoral fellowship, Harvard University
- ◆ 2007 Shortlisted for The Chua Toh Hua Memorial Gold Medal (University award to PhD graduate with the most outstanding research work done in Life Sciences)
- ◆ 2002-2006 Postgraduate scholarship, National University of Singapore

### **Grants**

- ◆ National Natural Science Foundation of China (Project 31672029) (2017-2020)
- ◆ National Key Research and Development Program (Project 2016YFC1200601) (2016-2018)
- ◆ New Century Excellent Talents in University, Ministry of Education (2013-2015)
- ◆ National Natural Science Foundation of China (Project 31171848) (2012-2015)
- ◆ National Natural Science Foundation of China (Project 31071686) (2011-2013)
- ◆ Zhejiang Provincial Natural Science Foundation (Project Y3100185) (2010-2012)
- ◆ Integrated prevention and management of *Tomato yellow leaf curl virus* disease, Special Fund for Agro-scientific Research in the Public Interest (2010-2014)