

2016 Curriculum vitae



NAME: Ping Wang
DEPARTMENT/UNIT: Entomology
TITLE: Associate Professor
CAMPUS ADDRESS: Department of Entomology, Cornell University, NYSAES, 630 W. North St., Geneva, NY 14456
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EDUCATION

<u>Year</u>	<u>Degree</u>	<u>Institution</u>
1996	Ph.D.	Cornell University
1986	M.S.	Fudan University, China
1983	B.S.	Fudan University, China

ACADEMIC RANKS (year achieved)

Associate Professor: 2007
Assistant Professor: 2001

AREAS OF EXPERTISE

Insect physiology, biochemistry and molecular biology; molecular interaction of insects with microbial pathogens and host plants; insect genomics and proteomics; molecular diagnostics of invasive insects; insect cell culture

RESPONSIBILITIES

Research 75%
Extension 10%
Administration 15%

PROFESSIONAL EXPERIENCE

<u>Year</u>	<u>Experience</u>
2007- :	Associate professor, Department of Entomology, New York State Agricultural Experiment Station, Cornell University
2001-2006:	Assistant professor, Department of Entomology, New York State Agricultural Experiment Station, Cornell University
2000-2001:	Research associate, Boyce Thompson Institute at Cornell University

1998-2000: Postdoctoral associate, Boyce Thompson Institute at Cornell University
 1996-1997: Postdoctoral fellow, National Institutes of Health
 1991-1996: Graduate research assistant, Cornell University
 1989-1991: Visiting scientist, Boyce Thompson Institute at Cornell University
 1986-1989: Research scientist, Chinese Academy of Sciences
 1983-1986: Graduate research assistant, Fudan University, China

GRANT SUPPORT

1. USDA AFRI Foundational Program NYG-621599 (Wang & Fei) 01/2016 – 12/2018
 Understanding the molecular mechanism of insect resistance to Bt toxin Cry2Ab \$499,900
2. USDA Hatch Project NYG-621452 (Wang) 10/2015 – 09/2018
 Genetic manipulation in cabbage looper for identification of target sites for pest control \$90,000
3. USDA AFRI Foundational Program (Blissard, Wang & Fei) 02/2015 – 01/2018
 Modifying insect midgut responses to pathogen attack \$454,996
 (Wang: \$59,423)
4. USDA NIFA BRAG NYG-621575 (Wang) 09/01/12 – 08/31/16
 Molecular genetic basis of insect resistance to Bt-crops \$499,997
5. Federal Formula Funds NYG-621405 (Wang & Shelton) 10/2012 – 09/2015
 Genetic analysis of cabbage looper populations to understand migration of the pest to New York \$60,000
6. Industry Funds (Wang) 03/2011 – 04/2016
 Product testing agreements \$190,000
7. USDA NRICGP NYG-621540 (Wang) 4/1/08 – 3/31/13
 USDA NRICGP \$399,977
 Understanding a Novel Mechanism of Bt Resistance in the Cabbage Looper, *Trichoplusia ni*
8. USDA CSREES PMAP 34381 (Shelton, Chen, Hallett, Wang, Kikkert & Hoepting) 8/01/08 – 7/31/10
 \$251,022
 Providing the research and education needs for integrated pest management of Swede midge, a new invasive threat to American agriculture
9. Federal Formula Funds Initiative Program (Shelton & Wang) 10/1/08 – 9/30/11
 \$18,000
 Managing Swede midge through research-based knowledge and an outreach program

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| 10. NYG 621510 (Wang) | 10/01/01 - 9/30/13 |
| USDA Federal Formula Hatch | \$45,000 (15,000/Yr for 2010 and 2013) |
| Molecular basis of physiological and defense mechanisms in the insect midgut | |
| 11. NSF IOB 0543164 (Wang) | 02/15/06 - 1/31/10 |
| National Science Foundation | \$480,000 |
| Study of protein constituents of Lepidoptera peritrophic membranes | |
| 12. NY GREENGRASS ASSOC 54889 (Wang & Peck) | 02/01/07 – 01/31/09 |
| NYS Greengrass Association, Environmental Stewardship Fund | \$36,300 |
| Development of Molecular Diagnostic Techniques for Identification of Invasive Pest Crane Flies in Turfgrass | |
| 13. NYG 621416 (Wang & Reissig) | 10/01/06 – 9/30/09 |
| USDA Federal Formula Funds | \$60,000 |
| Understanding the genetic structure of obliquebanded leafroller populations in apple production areas in New York State | |
| 14. USDA 2005-34381-16006 (Shelton, Hoepfing, Kikkert, Wang & Zhao) | |
| | 09/01/05 - 8/31/07 |
| USDA PMAP | \$213,618 |
| Development and implementation of best management practices to reduce the impact of New York invasive insect pest, the Swede midge | |
| 15. NYS Ag&Mkts C200134 (Shelton & Wang) | 06/01/07 - 12/31/07 |
| NYS Dept of Ag & Mkts | \$12,000 |
| Survey of Swede midge in New York State and surrounding states, 2007 | |
| 16. NYS Dept. of Agriculture & Markets C200134 (Shelton & Wang) | 05/01/05 - 12/31/05 |
| NYS Dept. of Agriculture & Markets | \$20,000 |
| Survey for swede midge in New York State and surrounding states, 2005 | |
| 17. NYR-1999-02648 (Granados & Wang) | 12/01/99 - 11/30/03 |
| USDA NRICGP | \$200,000 |
| Engineering midgut chitin-binding peptides for insect control | |

RESEARCH RESPONSIBILITIES

Postdoctoral Associates

Xiaowei Yang, 2015 – present
 Guillaume Tetreau, 2013 – 2015
 Kasorn Tiewisiri, 2008 – 2011
 Lihua Huang, 2007 – 2009
 Xingwei Hou, 2006

Visiting Scientists

Xiaowei Yang, 2015

Xiangqun Yuan, 2014 – 2015
Yiping Li, 2014 – 2015
Dong Fan, 2009 - 2010
Yihong Shen, 2009 - 2010
Ming Chen, 2009- 2010
Jianghong Li, 2007 – 2008
Changyou Li, 2004 – 2006

Other Research Professionals Supervised

Wendy Kain (Research support specialist), 2001 – present
Xiaoli Ma (Visiting fellow), 2014 – 2016
Shaohua Wang (Visiting fellow), 2014 – 2016
Ran Wang (Visiting fellow), 2012 – 2014
Ensi Shao (Visiting fellow), 2013
Xiaoning Nan (Visiting fellow), 2007-2009
Zhen Li (Visiting fellow), 2007-2008
Xiaoling Gu (Temporary lab assistant), 2007
Herong Shi (Temporary lab assistant), 2007
Kandi Nelson (Temporary lab assistant), 2006

TEACHING AND ADVISING RESPONSIBILITIES

Courses Taught (course number and name)

Guest lectures:

Entom 4830, Insect Physiology, 2015 (1 lecture and 1 lab)
Tox 4900, Insect Toxicology and Insecticidal Chemistry, 2015 (2 x 85-min lectures)
Entom 4830, Insect Physiology, 2013 (1 lecture and 1 lab)
Entom 7670, Current Topics in Entomology, 2012 (Coordinator)
Entom 7670, Current Topics in Entomology, 2011 (1 lecture)
Entom 4830, Insect Physiology, 2011 (2 lectures and 1 lab)
Tox 4900, Insect Toxicology and Insecticidal Chemistry, 2008 (1 lecture)
Entom 4630, Invertebrate Pathology, 2008 (1 lecture)
Entom 7670, Current Topics in Entomology, 2008 (1 lecture)

Undergraduate straining

Jesse Brundage: Keuka College undergraduate student, Summer Field Period (summer of 2016)
Rey Cotto: University of Puerto Rico undergraduate student, summer internship for independent research (NYS Agricultural Experiment Station undergraduate scholars program, 2016)
Jack Struble: Macalester College undergraduate student, summer internship for independent research (NYS Agricultural Experiment Station undergraduate scholars program, 2013)
Douglas Cassidy: Cornell undergraduate student, summer internship for independent research (summer of 2009 – 3 months)
Collin McGregor: NSF funded student research (Wang's NSF project), 03/2006 – 12/2006; 06/2007 – 12/2007

EXTENSION/OUTREACH RESPONSIBILITIES

My position responsibility division is 75% research, 10% extension and 15% administration.

Extension projects and activities

1. With the Cornell vegetable entomologist and extension specialist team, my program was responsible for molecular identification and confirmation of an invasive insect, the Swede midge, collected from various locations in NY. (Grant support: USDA CSREES PMAP 9/2005-8/2007, 8/2008-7/2010; USDA Federal Formula Funds Initiative Program 10/2008-9/2011; NYS Ag&Mkts 5/2005-12/2005; 6/2007-12/2007; USDA Federal Formula Hatch 9/2010-8/2012)
2. With the Cornell soil entomology program, my program developed molecular diagnostic techniques for identification of two invasive crane flies in NY. (Grant support: NYS Greengrass Association, Environmental Stewardship Fund 2/2007-1/2009)
3. With the Cornell vegetable entomology programs, my laboratory conducted molecular analysis of field-collected thrips samples to assess movement and host preference of thrips populations in the field, developed molecular techniques to differentiate intraspecific strains and detect gene flow between strains.
4. With the Cornell tree fruit entomology program, my laboratory conducted molecular analysis of obliquebanded leafroller (OBLR) populations to examine selected OBLR populations in NY and their pesticide resistance. (Grant support: USDA Federal Formula Funds 10/2006-9/2009).
5. With the NYS IPM program, our laboratory identified a new invasive insect, the carrot seed moth, *Sitochroa palealis*, in New York in 2010.
6. In 2011, our laboratory helped identify the species of insect (Virginia tiger moth) from a submitted specimen of egg mass collected from pepper plants in the field, and the species (dock rustic moth) from samples submitted from IPM program.
7. Examination of molecular barcode for the newly invaded pest the leek moth collected in NY. (2013)
8. Identification of field collected insect specimens. (2014)
9. With New York State IPM Program staff, we conducted a project to identify all Lepidoptera specimens caught in European corn borer, corn earworm, fall armyworm and western bean cutworm pheromone traps for the entire 2014 monitoring season in the area, using morphological and molecular methods. Lepidoptera species were identified to include 46 species in 34 genera that belong to 10 families. (2014-2015)

10. With the Cornell vegetable entomologist, we are currently conducting an analysis of cabbage looper populations collected across the US continent. (Grant support: USDA Federal Formula Funds 10/2012-9/2015)

11. Identification of non-target insect species in pheromone traps (2016).

Extension Talks and Outreach Events:

1. Swede midge planning and information sessions (Sponsored by USDA-APHIS-PPQ, December 1–2, 2004)

Location: Barton Lab, NYSAES, Cornell University

Attendants: Administrators, scientists and technical specialists from USDA/APHIS/PPQ, NY State Department of Agriculture and Cornell Cooperative Extension (18 attendants)

Presentation and discussion: Molecular identification of the new invasive insect pest, the swede midge, in the US.

2. Swede midge training workshop (May 19, 2005)

Location: Barton Lab, NYSAES, Cornell University

Attendants: Pest survey specialist from Maine (1)
Survey specialist from Wisconsin (1)
Prescreeener for New York (1)
Domestic regional program manager, USDA-APHIS-PPQ (1)
Extension vegetable specialist, NY (1)
Other from NY (1)

Instruction: Molecular identification of the invasive insect pest, Swede midge

3. Petal Fall Field Talks (May 31, 2005):

Location and audience: Gasport, NY (25 attendants)
Waterport, NY (30 attendants)

Title and time: Laboratory researches related to apple pest management in the NYSAES (15 min)

4. Petal Fall Field Talks (June 1, 2005):

Location and audience: Macedon, NY (20 attendants)
Williamson, NY (50 attendants)

Title and time: Laboratory researches related to apple pest management in the NYSAES (15 min)

5. Agriculture and Food Systems In-service Conference (November 9, 2006, Ithaca, NY)

Title of presentation: Molecular detection and monitoring of invasive insect species. (a 10-min powerpoint presentation followed by a discussion with questions)

6. Fruit Field Day 07' (July 25, 2007, Geneva, NY)

Title of presentation: Molecular identification and monitoring of insect pests (a 15-min powerpoint presentation)

7. Agriculture and Food Systems In-service Conference (November 15, 2007, Ithaca, NY)

Title of presentation: Using molecular tools for understanding onion thrips dispersal (a 10-min powerpoint presentation followed by a discussion with questions)

8. Agriculture and Food Systems In-service Conference (November 12, 2009, Ithaca, NY)

Title of presentation: Molecular tools for insect identification and population analysis (a 10-min powerpoint presentation followed by a discussion with questions)

9. The NYS Agricultural Experiment Station 125th Anniversary School Day (September 14, 2007, Geneva, NY)

Presentations of our research activities at the experiment station with hands-on opportunities to groups of students from 11 high schools from the area.

10. The NYS Agricultural Experiment Station 125th Anniversary Open House (September 15, 2007, Geneva, NY)

My program ran an educational booth exhibiting the our research at the New York State Agricultural Experiment Station and demonstrating the science and technology of my program, and provided hands-on opportunities to visitors which were estimated to reach 4,000 for the entire stationwide event.

11. Cornell Entomology Open House (Insectapalooza) (2010, 2012, 2014, 2105, Ithaca, NY)

My program ran an educational booth exhibiting biotechnology in agriculture and studies at Cornell helping management of the insect resistance.

ADMINISTRSTION RESPONSIBILITIES

Starting from 2010, I was appointed as associate director of the Tang Cornell-China Scholars program, and took full responsibility for the program since 2012, as the director of the program. Responsibility as the director covers all aspects of the program, including soliciting nominations, contacting Chinese universities and academic institutions, organizing peer reviews of nominees, selecting scholars, assisting appointment and visa application process, arranging scholars' international travels and living accommodations, managing and coordinating the scholars' programs at Cornell, and regular interactions with the Tang family and the college administration for the program. Since taking the full responsibility for the program, I managed the program and completed administrative process and logistics for the 7th class of Tang Scholars 2013, organized the selection of the 8th class of Tang Scholars 2015 who are currently on campus. Currently, I am in the process of preparing nomination invitations to selected Chinese universities/national academic institutions and will complete the selection of Cornell Tang Scholars 2017.

I initiated and started developing a joint applied agricultural research and extension initiative with the Northwest Agriculture and Forestry University (NWFU) in China in 2012. The project is in progress. I have organized Cornell faculty group visits to NWFU in 2013 and 2015 to meet and discuss with the administrators, faculty members and extension experts of

NWAFU, give lectures to students and extension professionals, make field trips and give technical presentations to extension educators and growers. I am arranging a Cornell faculty groups visit to NWAFU for this year (2016) and am developing a formalized joint project to be signed between Cornell and NWAFU.

To maintain a stronger network of Cornell Tang Scholars, facilitate continuing collaborations and strengthen the impact of the Cornell Tang Scholars and Cornell University in China, and I have been working on planning and organization of a Tang Scholars Symposium to be held in China in 2016.

GRADUATE FIELD MEMBERSHIPS

Entomology

GRADUATE MAJORS

Zach Cohen, MS (non-thesis), Dec 8, 2015

Xiaozhao Song, PhD, Aug 14, 2013

Xin Zhang, MS, Dec. 22, 2006

GRADUATE MINORS

Liuqi Gu, PhD student (Field of entomology), 09/2009-05/2015

Lucy Kafui Lavi, MS student (Field of entomology), 08/2012 – 04/2014

Jian Zhou, PhD in the field of entomology (2002-2007), completed in November of 2007

OTHER CURRENT PROFESSIONAL ACTIVITIES

PROFESSIONAL SOCIETIES

American Society of Entomology

Society for Invertebrate Pathology

American Society for Microbiology

REVIEW OF MANUSCRIPTS (2001-2016) (declined invitations are not included):

1. Africa Journal of Biotechnology (2015)
2. Agricultural and Forest Entomology (2007)
3. Archives of Insect Biochemistry and Physiology (2001, 2006, 2011, 2013)
4. Arthropod-Plant Interactions (2011)
5. BioControl (2006)
6. Biological Control (2008)
7. Biocontrol Science & Technology (2x 2010, 2011)
8. Biotechnology Progress (2006)
9. BMC Genomics (2011)
10. BMC Molecular Biology (2008, 2009)
11. Comparative Biochemistry and Physiology (2004, 2005, 2006, 2008, 2010)

12. Crop Science (2011)
13. Current Microbiology (2015)
14. Developmental & Comparative Immunology (2015)
15. Electronic Journal of Biotechnology (2006)
16. Entomologia Experimentalis et Applicata (2011)
17. Entomological Science (2009)
18. Environmental Entomology (2007)
19. European Journal of Entomology (2007)
20. FEBS Microbiology Letters (2015)
21. Gene (2x 2013)
22. Genetics (2012)
23. In Vitro Cell and Development Biology – Animal (2004, 2008)
24. Insect Biochemistry and Molecular Biology (2x 2002, 2003, 4x 2004, 4x 2005, 2x 2006, 6x 2007, 4x 2008, 2x 2009, 2011, 2013, 3x 2014, 4x 2015, 2x 2016)
25. Insect Molecular Biology (3x 2008, 2009, 2010, 2011, 2012, 2013, 2015, 2x 2016)
26. Insect Science (3x 2005, 2006, 4x 2007, 2008, 2010, 2011, 2013, 2016)
27. Journal of Economic Entomology (2005, 2006, 3x 2008, 3x 2009, 2015)
28. Journal of Insect Behavior (2007)
29. Journal of Insect Physiology (2007, 2x 2010, 2x 2014)
30. Journal of Insect Science (2004, 2006)
31. Journal of Invertebrate Pathology (2003, 2x 2005, 2006, 2x 2007, 3x 2008, 2x 2009, 2x 2010, 2012, 2013, 2x 2014)
32. Journal of Membrane Biology (2010)
33. Journal of Proteome Research (2008)
34. Journal of Virology (2009)
35. Malaria Journal (2012)
36. Micron (3x 2012)
37. Molecular Biology Report (3x 2012, 2013)
38. Nature (2016)
39. Nature Biotechnology (2015, 2016)
40. Pest Management Science (2005, 2x 2006, 2008, 2009, 3x 2011, 2016)
41. Pesticide Biochemistry and Physiology (3x 2007, 2010, 2011, 2013, 2014)
42. Phytochemistry (2006)
43. Plant Physiology (2006)
44. Plant Science (2006, 2007)
45. PLoS One (2x 2011, 3x 2012, 4x 2013, 3x 2014, 2016)
46. PLoS Pathogens (2011)
47. Proteomics (2013)
48. Proceedings of the National Academy of Sciences of USA (2001, 2013, 2015, 2x 2016)

49. Scientific Reports (2014, 2x 2015)

COMMITTEE ASSIGNMENTS

- **University:**

Member of the Cornell China Center Faculty Committee (04/2016 – present)

Member of the Cornell Institutional Biosafety Committee (03/2014 – present)

Director of the Tang Cornell-China Scholars Program (2012 –)

Associate Director of the Tang Cornell-China Scholars Program (2010 – 2012)

Member of Cornell-in-China Committee (2011- 2012)

Member of the University Faculty Senate (2002-2008)

- **College:**

Member of the College Faculty Senate (2002-2008)

CALS Diversity Committee (2005 – 2006)

Member of the Search Committee for the Insect Genomics Faculty position (2002)

Ad hoc tenure revaluation committee (2012)

- **Department:**

Member of the following department committees:

Awards Committee (09/2014 – present)

Barton Space Committee (2013 – present)

Grace Griswold Fund Committee (2010 – 2012, as Chair in 2012)

Search Committee for the Insect Immunologist faculty position (2011-2012)

Entomology Seminar Committee (Geneva) (2010 – 2012, 2011 Committee Chair)

Graduate Admission Committee (2009 – 2010)

Organizer (with co-organizer Dr. Gary Blissard): Cornell Symposium on Lepidopteran Biology (Oct 11, 2011)

OTHER CURRENT PROFESSIONAL CONTRIBUTIONS

RESEARCH AND EXTENSION GRANT REVIEW PANELS (please provide detail)

Research grant review panels:

1. NSF IOB program (2006)
2. USDA AFRI programs “Arthropod and Nematode Biology and Management: Suborganismal Biology” and “Arthropod and Nematode Biology and Management: Tools, Resources, Genomics” (2009)

Review of grant proposals for the following grant agencies (those declined to review are included):

1. US Civilian Research & Development Foundation (2008)
2. USDA Hatch Funds (2002, 2007, 2008, 2011)
3. USDA Federal Formula Grants (2006, 2011, 2012)
4. Kansas State University Arthropod Genomics Center Seed Grant Program (2004, 2006, 2007, 2008)
5. Ohio State University Research Enhancement Competitive Grants Program (2011)
6. USDA SBIR Program (2009)
7. NSF Programs (IOB 2006; IOS 2007, 2008, 2009, 2010, 2011, 2012; and DEB 2010)
8. The United States-Israel Binational Agricultural Research and Development (BARD) program (2004, 2007, 2012)
9. Chinese National Science Foundation (2006, 2008, 2009, 2011, 2012, 2013, 2014, 2015, 2016)

PROFESSIONAL SERVICE:

International conference:

1. Co-organizer (with Dr. Qili Feng) of the *First International Symposium on Insect Midgut Biology* (April 7-11, 2008, Guangzhou, China)
2. Co-organizer (with Dr. Qili Feng) of the *Second International Symposium on Insect Midgut Biology*, Guangzhou, China, September 24-28, 2012.
3. Academic Committee of the *Third International Symposium on Insect Physiology, Biochemistry and Molecular Biology*, Shanghai, China, July 2-6, 2011.
4. Scientific Committee of the *International Conference on Molecular Ecology and Pest Management*, Fuzhou, China, Oct 28-31, 2014.

Committee of international academic institutions:

1. International Review Committee for the Institute of Zoology, Chinese Academy of Sciences, Beijing (October 26-29, 2009, Beijing, China).
2. Academic Committee of the Key Laboratory of Applied Entomology at the Northwest A&F University, China, 2010-present.
3. External Review Committee for the National Key Laboratory of Biological Control, Zhongshan University, Guangzhou, China, May 17-18, 2012.
4. External Review Committee for the National Key Laboratory of Biological Control, Zhongshan University, Guangzhou, China, January 11-12, 2014.

External review of faculty promotion:

1. External evaluation for a faculty promotion (tenure) in a major US state university (2012).

2. External Evaluator for a Research Position Evaluation (promotion) case in USDA ARS (2012).
3. External Evaluator for a Research Position Evaluation (promotion) case in USDA ARS (2014).
4. External Evaluator for a Research Position Evaluation (promotion) case in USDA ARS (2016).
5. External evaluation for a non-tenure track faculty promotion (from assistant to associate faculty rank) in a major US state university (2014).
6. External evaluation for a faculty promotion (tenure) in a major US state university (2015).

Other professional service:

1. Online mentor of the American Society for Microbiology Minority Mentoring Program (2004 – present)
2. Moderator: International Insect Science Symposium, Aug 7-14, 2006, Beijing, China.
3. Judge: Student 10-minute presentation competition (oral), Section B, Annual Meeting of the Entomological society of America, 2008. Reno, Nevada.
4. Judge: Student 10-minute presentation competition (oral), Section B, Annual Meeting of the Entomological society of America, 2009. Indianapolis, IN
5. Judge for student 10-minute presentation competition, Section B, Annual Meeting of the Entomological Society of America, 2010, San Diego, CA.
6. Judge for student 10-minute presentation competition, Section B, Annual Meeting of the Entomological Society of America, 2011, Reno, NV.
7. Session Chair, Midgut Stem Cells and In Vitro Systems, The Second International Symposium on Insect Midgut Biology, 2012, Guangzhou, China.
8. Moderator: Ten-minute paper presentation, PBT Section: Insect-microbe interactions, immunity, and parasitology, Annual Meeting of the Entomological Society of America, 2013, Austin, TX.

INVITED PRESENTATIONS:

- Wang, P. 2016 (accepted) *Bt resistance and mode of action of Cry toxins in the cabbage looper. Symposium: Bt Mode of Action, Resistance Mechanisms and Global Patterns* (organized by Alejandra Bravo and Mario Soberon). International Conference of Entomology, Orlando, FL. Sept 25-30, 2016.
- Wang, P. 2016 (declined due to the limit to one presentation per person). Keynote speaker on insect peritrophic matrices. *Symposium: Insect Biocomposites: cuticles and peritrophic matrices* (organized by Hans-Michael Merzendorfer, Michael Kanost and Tsunaki Asano). International Conference of Entomology, Orlando, FL. Sept 25-30, 2016.
- Wang, P. 2015. *Resistance of cabbage looper to DiPel*. Symposium “Mechanisms of field resistance to Bt pesticides and Bt crops”, Annual Meeting of the Society for Invertebrate

- Pathology, Vancouver, BC, Canada, July 9-13, 2015.
- Wang, P. 2015. *What mechanisms of insect resistance to Bt toxins may confer resistance to Bt crops in the field?* Institute of Insect Science, Zhejiang University, Hangzhou, China. July 8, 2015.
- Wang, P. 2015. *Bt-resistance in the cabbage looper: An opportunity to understand mechanisms of Bt-resistance evolved in agricultural systems.* Department of Entomology, Cornell University. March 11, 2015.
- Wang, P. 2015. *Molecular genetic basis of insect resistance to Bt-crops.* USDA NIFA Biotechnology Risk Assessment Grants Program Annual Project Director's Meeting, Jun 4, 2015. Riverdale, MD.
- Wang, P. 2014. *Bt resistance in Trichoplusia ni: mechanisms of resistance to multiple Bt toxins in a generalist insect.* International Conference on Molecular Ecology and Pest Management, Oct. 28-31, 2014. Fuzhou, China.
- Wang, P. 2104. *Understanding insecticidal Bt toxins: mode of action and mechanisms of resistance.* National Key Laboratory for Biological Control, Zhongshan University, Guangzhou, China. Jan. 12, 2014. (Zhongshan University)
- Wang, P. 2013. *Variation of the midgut cadherin in the cabbage looper, Trichoplusia ni.* Symposium "Insect Resistance Management: Lessons Learned from Biochemical and Molecular Paths to Bt Resistance", Annual Meeting of the Entomological Society of America, Nov. 13, 2013, Austin, TX.
- Wang, P. 2013. *ABC transporter-associated resistance to Bacillus thuringiensis toxins in insects.* Symposium "ABC Transporters: An important "New" Player in Insect Biology", Annual Meeting of the Entomological Society of America, Nov. 13, 2013, Austin, TX.
- Wang, P. 2013. *What mechanisms of resistance to transgenic Bt-crops may be selected in insect populations in the field?* The First EITA Conference on Agricultural Science and Technology, Biosystems Engineering, "Precision Agriculture: Challenges and Future Directions". Jun 27-28, 2013. Ithaca, NY.
- Wang, P. 2012. *Bt-resistance in cabbage looper: an opportunity to understand mechanisms of resistance evolved in agricultural systems.* Department of Entomology, University of Kentucky, Lexington, KY. Jan. 20, 2012. (Host: Dr. Zhou, J.)
- Wang, P. 2012. *Towards understanding the mechanisms of Bt resistance in insects.* National Key Laboratory for Biological Control, Zhongshan University, Guangzhou, China. May 18, 2012. (Host: Dr. Zhang, W.)
- Wang, P. 2012. *Proteomic approaches to understand resistance to Bt toxins in Trichoplusia ni.* The Second International Symposium on Insect Midgut Biology, Guangzhou, China, Sept. 27, 2012.
- Wang, P., 2012. *Molecular mechanisms of Bt resistance in insects.* Institute of Virology, Chinese Academy of Sciences, Wuhan, China. Sept. 22, 2012. (Host: Dr. Hu, Z.)
- Wang, P., 2012. *What mechanisms of Bt resistance may be selected in insect populations in the field?* College of Life Sciences, Central China Normal University, Wuhan, China. Sept. 21, 2012. (Host: Dr. Hong, H.)

- Wang, P., 2012. *What mechanisms of Bt resistance may be selected in insect populations in the field?* National Key Laboratory of Agricultural Microbiology, Huazhong Agricultural University, Wuhan, China. Sept. 20, 2012. (Host: Dr. Sun, M.)
- Wang, P., 2011. *Bt-resistance in cabbage looper: An opportunity to understand mechanisms of resistance evolved in agricultural systems.* The Monsanto Company, St. Louise, Mo., Dec. 6, 2011. (Host: Dr. Chen, M.)
- Wang, P. 2011. *Bt-resistance in cabbage looper: An opportunity to understand mechanisms of Bt-resistance in agricultural systems.* Institute for Integrative Genome Biology, University of California, Riverside. November 18, 2011. (Host: Professor Gill)
- Wang, P. 2011. *Molecular basis of resistance to Bt toxin CryIAC in Trichoplusia ni.* Symposium “State-of-the-art Molecular Research of Global Interest”, Annual Meeting of the Entomological Society of America, Nov. 13, Reno, NV.
- Wang, P. 2011. *Mechanism of Bt resistance in the cabbage looper, Trichoplusia ni.* Symposium “The Molecular Physiology of Arthropod Vectors and Pests: Towards the Development of Novel Control Agents and Approaches”, Annual Meeting of the Entomological Society of America, Nov. 16, 2011, Reno, NV.
- Wang, P., 2011. *Mechanism of insect resistance to Bacillus thuringiensis evolved in agriculture situations.* The Second International Symposium on *Bombyx mori* Functional Genomics and Modern Silk Road. October 22 – 23, 2011, Chongqing, China.
- Wang, P. 2011. *Bt-resistance in cabbage looper: An opportunity to understand mechanisms of resistance evolved in agricultural systems.* College of Plant Protection, Nanjing Agricultural University, Nanjing, China. Oct. 20, 2011. (Host: Professor Wu, Y.)
- Wang, P. 2011. *Mechanisms of resistance to Bacillus thuringiensis toxins in lepidopteran pests.* Institute of Applied Ecology, Fujian Agricultural and Forestry University, Fuzhou, China. Oct 19, 2011. (Host Professor You, M.)
- Wang, P. 2011. *Mechanisms of resistance to Bacillus thuringiensis toxins in lepidopteran pests.* Cornell Symposium of Lepidopteran Biology. Oct. 11, 2011, Cornell University.
- Wang, P. 2011. *Biochemical and molecular bases of Bt resistance in cabbage looper, Trichoplusia ni.* Institute of Insect Science, Zhejiang University, Hangzhou, China. April 13, 2011. (Host: Professor Shen, Z.)
- Wang, P. 2011. *Biochemical and molecular bases of Bt resistance in cabbage looper, Trichoplusia ni.* College of Plant Protection, South China Agricultural University, Guangzhou, China. April 15, 2011. (Host: Professor Ren, S.)
- Wang, P. 2010. *Understanding a novel mechanism of Bt resistance in the cabbage looper, Trichoplusia ni.* USDA-Agriculture & Food Research Initiative (AFRI) Pest and Beneficial Insects in Plant Systems Programs Awardee Workshop, Dec. 11-12, 2010. San Diego, CA.
- Wang, P., 2010. *The insect peritrophic membrane: Biochemistry and function in interactions with host plants and microbial pathogens.* Institute of Applied Entomology, Zhejiang University, Hangzhou, China. May 31, 2010. (Host: Professor Zhang, C.)
- Wang, P., 2010. *Bt-resistance in cabbage looper: An opportunity to study Bt-resistance mechanisms in the field.* College of Plant Protection, Northwest Agricultural and Forestry

- University, Yangling, China. March 27, 2010. (Host: Professor Liu, T.)
- Wang, P., 2010. *Bt-resistance in cabbage looper: An opportunity to study mechanisms of field-evolved resistance to Bt-crops*. College of Plant Protection, Fujian Agricultural and Forest University, Fuzhou, China, May 25, 2010. (Host: Professor You, M.)
- Wang, P., 2010. *Biochemistry and function of the insect peritrophic membrane in interactions with host plants and microbial pathogens*. College of Plant Protection, Fujian Agricultural and Forest University, Fuzhou, China, May 26, 2010. (Host: Professor You, M.)
- Wang, P., 2010. *Identification of midgut protein alterations conferring Bt resistance in cabbage looper*. Cornell University Proteomics Group Meeting, Cornell University, Dec. 1, 2010. (Host: Dr. Zhang, S.)
- Wang, P., 2010. *Biochemistry and function of the insect peritrophic membrane in interactions with host plants and microbial pathogens*. Department of Entomology (Geneva), Cornell University. Oct. 12, 2010.
- Tiewisiri, K. and Wang, P., 2010. How Does the Cabbage Looper, *Trichoplusia ni*, Become Resistant to the *Bt* toxin Cry1Ac? Department of Entomology (Geneva), Cornell University. Nov. 9, 2010.
- Wang, P., 2009. *Biochemistry and function of the insect peritrophic membrane in interactions with host plants and microbial pathogens*. Department of Biochemistry, Kansas State University, Manhattan, Kansas. April 29, 2009. (Host: Professor Muthukrishnan, S.)
- Wang, P., 2009. *The peritrophic membrane of insects: Structural formation and function in interactions with host plants and microbial pathogens*. International Symposium on *Bombyx mori* functional genomics and modern Silk Road. October 21 – 23, 2009, Chongqing, China.
- Wang, P., 2009. *Biochemistry and function of the insect peritrophic membrane in interactions with host plants and microbial pathogens*. College of Agriculture and Biotechnology, China Agricultural University, Beijing, China. October 26, 2009. (Host: Professor Zhang, Q.)
- Wang, P., 2009. *Biochemistry and function of the insect peritrophic membrane in interactions with host plants and microbial pathogens*. College of Life Sciences, Hebei Agricultural University, Baoding, China. October 30, 2009. (Host: Professor Guo, W.)
- Wang, P., 2009. *Bt-resistance in cabbage looper: An opportunity to study Bt-resistance mechanisms in field*. College of Life Sciences, South China Normal University, Guangzhou, China. November 2, 2009. (Host: Professor Feng, Q.)
- Wang, P., 2009. *Bt-resistance in cabbage looper: An opportunity to study Bt-resistance mechanisms in field*. College of Life Sciences, Zhongshan University, Guangzhou, China. November 3, 2009. (Host: Professor Pang, Y.)
- Wang, P., 2009. *Biochemistry and function of the insect peritrophic membrane in interactions with host plants and microbial pathogens*. Symposium of Pest Management in the 21st Century, Northwest Agricultural and Forestry University, Yangling, China. November 4-5, 2009. (Host: Professor Liu, T.)
- Wang, P., 2009. *Biochemistry and function of the insect peritrophic membrane in interactions with host plants and microbial pathogens*. Institute of Plant Physiology and Ecology, Chinese Academy of Sciences, Shanghai, China. November 10, 2009. (Host: Professor Huang, Y.)

- Wang, P., 2008. *The peritrophic membrane: A midgut barrier interacting with host plants and microbial pathogens*. International Symposium on Insect Midgut Biology, Apr. 7 – 11, 2008, Guangzhou, China.
- Wang, P., 2008. *Bt-resistance in cabbage looper: An opportunity to study Bt-resistance mechanisms in field*. Zhejiang University, China, Apr. 14, 2008 (Host: Dr. Shen, Z.).
- Wang, P., 2008. *The peritrophic membrane: A midgut barrier interacting with host plants and microbial pathogens*. Qingdao Agricultural University, China, Apr. 16, 2008 (Dr. Li, G.).
- Wang, P., 2008. *Bt as biopesticides: Mechanisms of action in insects*. Qingdao Agricultural University, China, Apr. 16, 2008 (Dr. Li, C.).
- Wang, P., 2008. *Mechanisms of Bt resistance in insects*. Qingdao Agricultural University, China, Apr. 16, 2008 (Dr. Li, C.).
- Wang, P., 2008. *Bt-resistance in cabbage looper: An opportunity to study Bt-resistance mechanisms in field populations*. Texas A&M University, Texas, Oct. 9, 2008 (Host: Dr. Salzman, K.).
- Wang, P., 2007. *The Peritrophic membrane and the role of enhancins*. Annual Meeting of the Society for Invertebrate Pathology, Aug. 12 – 16, 2007, Quebec, Canada.
- Wang, P., 2007. *Bt resistance in cabbage looper*. The Monsanto Company, St. Louise, Mo., June 18, 2007. (Host: Dr. Y. Li)
- Wang, P. 2006. *Mechanisms of Bt resistance in insects*. International Insect Science Symposium, Aug. 7 – Aug. 14, 2006. Beijing, China.
- Wang, P. 2006. *Biochemical and molecular basis of defense mechanisms in the insect midgut*. International Insect Science Symposium, Aug. 7 – Aug. 14, 2006. Beijing, China.
- Wang, P. 2006. *Biochemical and molecular basis of defense mechanisms in the midgut of the cabbage looper*. Institute of Plant Protection, Chinese Academy of Agricultural Sciences, Beijing, China, Aug. 7, 2006. (Host: Dr. Zhang, J.)
- Wang, P. 2006. *Biochemical and molecular basis of defense mechanisms in the midgut of the cabbage looper*. College of Life Sciences, Central China Normal University, Wuhan, China, Aug. 26, 2006. (Host: Dr. Hong, H.)
- Wang, P. 2006. *What mechanisms of Bt-resistance may insect populations develop in the field?* Department of Plant Breeding and Genetics, Cornell University, Oct. 3, 2006. (Host: Dr. Earle, E.)

CONFERENCES/WORKSHOPS/IN-SERVICE PARTICIPATION

- Wang, P. 2015. The Tang Cornell-China Scholars Program and Cornell-NWAFU applied research an extension initiative. The Northwest Agricultural and Forestry University, Aug. 30, 2015. Yangling, China.
- Wang, P., Ma, X., Chen, W., Kain, W. and Fei, Z. 2014. Molecular genetic basis of insect resistance to Bt-crops. USDA NIFA Biotechnology Risk Assessment Grants Program Annual Project Director's Meeting, Jun 4, 2014. Riverdale, MD.

- Wang, P. 2013. Molecular genetic basis of insect resistance to Bt-crops. USDA NIFA Biotechnology Risk Assessment Grants Program Annual Project Director's Meeting, Jun 14, 2013. Riverdale, MD.
- Struble, J. and Wang, P. 2013. Sequencing the mitochondrial COI gene from agricultural pest insects for molecular barcoding and population analysis. NYSAES Summer Scholars Program Undergraduate Research Poster Session. July 31, 2013, NYSAES, Geneva, NY.
- Wang, P. 2013. Tang Cornell-China Scholars Program. The Northwest Agricultural and Forestry University, Sept 9, 2013. Yangling, China.
- Song, X. and Wang, P. 2013. Biochemical analysis of resistance to *Bacillus thuringiensis* toxin Cry2Ab in cabbage looper, *Trichoplusia ni*. The 2nd Cornell Annual Entomology Symposium, Ithaca, NY.
- Tetreau, G., Song, X., Chen, Y.-R., Gao, S., Fei, Z., Blissard, G. and Wang, P. 2013. Midgut transcriptome of the cabbage looper, *Trichoplusia ni*. Annual Meeting of the Entomological Society of America, Nov. 10 – 13, 2013, Austin, TX.
- Song, X. and Wang, P. 2012. Resistance to *Bacillus thuringiensis* toxins Cry1Ac and Cry2Ab in cabbage looper, *Trichoplusia ni*. The 1st Cornell Annual Entomology Symposium, Ithaca, NY.
- Song, X. and Wang, P. 2011. Is resistance to *Bacillus thuringiensis* toxin Cry2Ab associated with mutations of Cry1Ac-receptor genes in *Trichoplusia ni*? Annual Meeting of the Entomological Society of America, Nov. 14, Reno, NV.
- Wang, P., Tiewisiri, K. and Kain, W. 2010. Understanding the Mechanism of Bt Resistance in the Cabbage Looper, *Trichoplusia ni*. USDA-Agriculture & Food Research Initiative (AFRI) Arthropods & Nematodes Biology & Management Programs Awardee Workshop, March 23-24, 2010. Washington DC.
- Song, X. and Wang, P., 2010. Multiple resistance or cross resistance? A case study of dual resistance to *Bacillus thuringiensis* toxins Cry1Ac and Cry2Ab in *Trichoplusia ni*. Annual Meeting of the Entomological Society of America, Dec. 12 – 15, 2010, San Diego, CA.
- Tiewisiri, K. and Wang, P., 2009. Analysis of *Bacillus thuringiensis* toxin Cry1Ac binding proteins in midgut brush border membranes of *Trichoplusia ni* larvae. Annual Meeting of the Entomological Society of America, Dec. 13 – 16, 2009, Indianapolis, Indiana.
- Song, X., Li, C., Li, G. and Wang, P., 2009. Identification and characterization of cysteine protease inhibiting activity in the midgut fluid of *Trichoplusia ni* larvae. Annual Meeting of the Entomological Society of America, Dec. 13 – 16, 2009, Indianapolis, Indiana.
- Li, J. and Wang, P., 2009. Role of midgut peritrophic membranes in regulating digestive protease activities. Annual Meeting of the Entomological Society of America, Dec. 13 – 16, 2009, Indianapolis, Indiana.
- Wang, P., 2009. Molecular tools for insect identification and population analysis (a 15-min powerpoint presentation followed by a discussion with questions). Agriculture and Food Systems In-service Conference, November 12, 2009, Ithaca, NY.
- Zhang, X., Huang, L., and Wang, P., 2008. Genetic linkage analysis of the midgut cadherin gene

- with resistance to *Bacillus thuringiensis* toxin Cry1Ac in the cabbage looper, *Trichoplusia ni*. Annual Meeting of the Entomological Society of America, Nov. 16 – 19, 2008, Reno, Nevada.
- Huang, L., and Wang, P., 2008. Expression of midgut genes coding for peritrophic membrane proteins in *Trichoplusia ni* in response to host plants and PM damage. Annual Meeting of the Entomological Society of America, Nov. 16 – 19, 2008, Reno, Nevada.
- Li, J. and Wang, P., 2008. Effects of peritrophic membrane alteration on midgut protease composition and activities of *Trichoplusia ni*. International Symposium on Insect Midgut Biology, Apr. 7 – 11, 2008, Guangzhou, China.
- Wang, P., Zhang, X., Kain, W. and Huang, L., 2008. Understanding the Mechanism of Bt Resistance in the Cabbage Looper, *Trichoplusia ni*. USDA Arthropod and Nematode Biology and Management PD Workshop. Nov. 15 – 16, 2008. Reno, Nevada.
- Wang, P., Zhao, J., Rodrigo-Simon, A., Kain, W. C., Janmaat, A. F., Shelton, A. M., Ferre, J. and Myers, J. 2006. *What is the mechanism of resistance to Bacillus thuringiensis toxin Cry1Ac in a greenhouse population of cabbage looper, Trichoplusia ni?* Annual Meeting of the Society for Invertebrate Pathology, Aug. 27 – Sept. 1, 2006, Wuhan, China.
- Guo, W., Li, G. and Wang, P. 2006. Inheritance of resistance and effect of PM on toxicity of *Bacillus thuringiensis* toxin Cry1Ac in cabbage looper, *Trichoplusia ni*. Annual Meeting of the Society for Invertebrate Pathology, Aug. 27 – Sept. 1, 2006, Wuhan, China.
- Guo, W., Li, G. and Wang, P. 2006. *A chitin deacetylase-like protein identified from the cabbage looper, Trichoplusia ni*. Annual Meeting of the Society for Invertebrate Pathology, Aug. 27 – Sept. 1, 2006, Wuhan, China.
- Wang, J., Yang, F., Li, G., Gai, S., Wang, P., Li, C., Zhou, H. and Cheng, L. 2006. *Identification of an insect intestinal mucin from the Lepidopteran peritrophic membrane of Helicoverpa armigera*. Annual Meeting of the Society for Invertebrate Pathology, Aug. 27 – Sept. 1, 2006, Wuhan, China.

PUBLICATIONS

Peer reviewed journal papers:

- Badran, A. H., Guzov, V. M., Huai, Q., Kemp, M. M., Vishwanath, P., Kain, W., Nance, A. M., Evdokimov, A., Moshiri, F., Turner, K. H., Wang, P., Malvar, T. and Liu, D. R. (2016) Continuous evolution of *Bacillus thuringiensis* toxins overcomes insect resistance. *Nature* 533: 58-63.
- Wang, R., Tetreau, G. and Wang, P. (2016) Effect of crop plants on fitness costs associated with resistance to *Bacillus thuringiensis* toxins Cry1Ac and Cry2Ab in cabbage loopers. *Scientific Reports*, 6: 20959.
- Song, X., Kain, W., Cassidy, D. and Wang, P. (2015) Resistance to *Bacillus thuringiensis* toxin Cry2Ab in *Trichoplusia ni* is conferred by a novel genetic mechanism. *Applied and Environmental Microbiology* 81: 5184-5195.

- Li, X. W., Wang, P., Fail, J. and Shelton, A. M. (2015) Detection of gene flow from sexual to asexual lineages in *Thrips tabaci* (Thysanoptera: Thripidae). *PloS One* 10: e0138353.
- Yuan, X., Gao, K., Yuan, F., Wang, P. and Zhang, Y. (2015) Phylogenetic relationships of subfamilies in the family HesperIIDae (Lepidoptera: Hesperioidea) from China. *Scientific Reports* 5: 11140.
- Tetreau, G., Cao, X., Chen, Y.-R., Muthukrishnan, S., Jiang, H., Blissard, G. W., Kanost, M. R. and Wang, P. (2015) Overview of chitin metabolism enzymes in *Manduca sexta*: identification, domain organization, phylogenetic analysis and gene expression. *Insect Biochemistry and Molecular Biology* 62: 114-126.
- Dittmer, N. T., Tetreau, G., Cao, X., Jiang, H., Wang, P., Kanost, M. R. (2015) Annotation and expression analysis of cuticular proteins from the tobacco hornworm, *Manduca sexta*. *Insect Biochemistry and Molecular Biology* 62: 100-113.
- Tetreau, G., Dittmer, N. T., Cao, X., Agrawal, S., Chen, Y.-R., Muthukrishnan, S., Jiang, H., Blissard, G. W., Kanost, M. R. and Wang, P. (2015) Analysis of chitin-binding proteins from *Manduca sexta* provides new insights into evolution of peritrophin A-type chitin-binding domains in insects. *Insect Biochemistry and Molecular Biology* 62: 127-141.
- Kain, W., Song, X., Janmaat, A. F., Zhao, J. Z., Myers, J., Shelton, A. M. and Wang, P. (2015) Resistance of *Trichoplusia ni* populations selected by *Bacillus thuringiensis* sprays to pyramided Bt cotton plants expressing Cry1Ac and Cry2Ab. *Applied and Environmental Microbiology* 81: 1884-1890.
- Chen, Y.-R., Zhong, S., Fei, Z., Gao, S., Zhang, S., Li, Z. Wang, P. and Blissard, G. W. (2014) Transcriptome responses of the host *Trichoplusia ni* to infection by the baculovirus *Autographa californica* multiple nucleopolyhedrovirus. *Journal of Virology* 88: 13781-13797.
- Li, X. W., Fail, J., Wang, P., Feng, J. N. and Shelton, A. M. (2014) Performance of arrhenotokous and thelytokous *Thrips tabaci* (Thysanoptera: Thripidae) on onion and cabbage and its implications on evolution and pest management. *Journal of Economic Entomology* 107: 1526-1534.
- Nault, B. A., Kain, W. C. and Wang, P. (2014) Seasonal changes in *Thrips tabaci* population structure in two cultivated hosts. *PLoS One* 9, e101791.
- Tian, J.-C., Long, L.-P., Wang, X.-Ping., Naranjo, S. E., Romeis, J., Hellmich, R. L., Wang, P., Shelton, A. M. (2014) Using resistant prey demonstrates that Bt plants producing Cry1Ac, Cry2Ab, and Cry1F have no negative effects on *Geocoris punctipes* and *Orius insidiosus*. *Environmental Entomology* 43: 242-251.
- Zhang, X., Kain, W. and Wang, P. (2013) Sequence variation and differential splicing of the midgut cadherin gene in *Trichoplusia ni*. *Insect Biochemistry and Molecular Biology* 43: 712-723.
- Tian, J. C., Wang, X. P., Long, L. P., Romeis, J., Naranjo, S. E. Hellmich, R. L., Wang, P., Earle, E. D. and Shelton, A. M. (2013) Bt Crops producing Cry1Ac, Cry2Ab and Cry1F do not harm the green lacewing, *Chrysoperla rufilabris*. *PLoS One* 8 (3): e60125.

- You, M., Yue, Z., He, W., Yang, G., Xie, M., Zhan, D., Baxter, S. W., Vasseur, L., Gurr, G. M., Douglas, C. J., Bai, J., Wang, P. et al. (2013) A heterozygous moth genome provides insights into herbivory and detoxification. *Nature Genetics* 45: 220-225.
- Leetachewa, S., Moonsom, S., Chaisri, U., Khomkhum, N., Yoonim, N., Wang, P., Angsuthanasombat, C. (2013). Functional characterizations of residues Arg-158 and Tyr-170 of the mosquito-larvicidal toxic *Bacillus thuringiensis* Cry4Ba. *BMB Reports* 2013 Dec 1. Pii:2490.
- Zhang, X, Tiewisiri, K., Kain, W., Huang, L. and Wang, P. (2012) Resistance of *Trichoplusia ni* to *Bacillus thuringiensis* Toxin Cry1Ac is independent of alteration of the cadherin-like receptor for Cry toxins. *PLoS ONE* 7: e35991. doi:10.1371/journal.pone.0035991.
- Baxter, S. W., Badenes-Pérez, F. R., Morrison, A., Vogel, H., Crickmore, N., Kain, W., Wang, P., Heckel, D. G. and Jiggins, C. D. (2011) Parallel evolution of *Bacillus thuringiensis* toxin resistance in Lepidoptera. *Genetics*, 189: 675–679.
- Tiewisiri, K. and Wang, P. (2011) Differential alteration of two aminopeptidases N associated with resistance to *Bacillus thuringiensis* toxin Cry1Ac in cabbage looper. *Proc. Natl. Acad. Sci. USA* 108: 14037-14042.
- Li, Y., Romeis, J., Wang, P., Peng, Y. and Shelton, A. M. (2011) A Comprehensive assessment of the effects of Bt cotton on *Coleomegilla maculata* demonstrates no detrimental effects by Cry1Ac and Cry2Ab. *PLoS ONE* 6, e22185. doi:10.1371/journal.pone.0022185
- Chen, M., Shelton, A. M., Hallett, R. H., Hoepfing, C. A., Kikkert, J. R. and Wang, P. (2011) Swede midge (Diptera: Cecidomyiidae), 10 years of invasion of crucifer crops in North America. *Journal of Economic Entomology* 104: 709-714.
- Terenius, O. et al. (2011) RNA interference in Lepidoptera: An overview of successful and unsuccessful studies and implications for experimental design. *Journal of Insect Physiology* 57: 231-245.
- Li, C., Song, X., Li, G. and Wang, P. (2009) Midgut cysteine protease-inhibiting activity in *Trichoplusia ni* protects the peritrophic membrane from degradation by plant cysteine proteases. *Insect Biochemistry and Molecular Biology* 39: 726-734.
- Chen, M., Shelton, A. M., Wang, P., Hoepfing, C. A., Kain, W. C. and Brainard, D. C. (2009) Occurrence of the new invasive insect *Contarinia nasturtii* (Diptera: Cecidomyiidae) on cruciferous weeds.. *J Econ Entomol.* 102: 115-120.
- Wang, P., Rodrigo, A., Zhao, J.-Z., Guo, W., Kain, W., Ferre, J., Shelton, A. and Myers, J. (2007) Mechanism of resistance to *Bacillus thuringiensis* toxin Cry1Ac in cabbage looper, *Trichoplusia ni*. *Applied and Environmental Microbiology* 73: 1199-1207.
- Fang, J., Xu, X., Wang, P., Zhao, J., Shelton, A. M., Cheng, J., Feng, M. and Shen Z. (2007) Characterization of chimeric *Bacillus thuringiensis* Vip3 toxins. *Applied and Environmental Microbiology* 73: 956-961.
- Kikkert, J. R., Hoepfing, C. A., Wu, Q., Wang, P., Baur, R. and Shelton, A. M. (2006) Detection of Swede Midge (Diptera: Cecidomyiidae) in New York, A New Pest of Cruciferous Plants in the United States. *Journal of Economic Entomology* 99: 1310-1315.

Book Chapters:

- Wang, P. (2015) Mechanism of Cry1Ac resistance in cabbage loopers – A resistance mechanism selected in insect populations in an agricultural environment. In “*Bt Resistance – Characterization and Strategies for GM Crops Expressing Bacillus thuringiensis Toxins*” (Eds: M. Soberon, Y. Gao and A. Bravo), CABI International, pp. 87-97.
- Wang, P. and Granados, R. R. (2013) Chapter 150, Baculovirus enhancin. In: “*Handbook of Proteolytic Enzymes (Third Edition)*” (Eds: N. D. Rawlings and G. Salvesen), Academic Press, pp. 713-716.
- Wang, P. (2008) Midgut and insect pathogens. In: Capinera, J. L. (Ed.) *Encyclopedia of Entomology*, 2nd edition. Springer. pp. 2386-2387.
- Shelton, A. M., Wang, P., Zhao, J.-Z. and Roush, R. T. (2007) Resistance to insect pathogens and strategies to manage resistance: An update. In: Lawrence, A. L. and Kaya, H. K. (Eds.) *Field Manual of Techniques in Invertebrate Pathology: Application and evaluation of pathogens for control of insects and other invertebrate pests*. 2nd edition. Springer. pp. 793-814.