

CURRICULUM VITAE

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Education

1981.7 – 1985.6 B.S., Biochemistry, East China Univ. of Science and Technology
1991.7 – 1994.12 Ph.D., Biochemistry, Kansas State University

Employment

1985.7 – 1991.6 Research Assistant, Shanghai Research Center of Biotechnology, Chinese Academy of Sciences
1995.1 – 1999.2 Postdoctoral Research Associate, Department of Biochemistry, Kansas State University
1999.3 – 2000.6 Research Assistant Professor, Department of Biochemistry, Kansas State University
2000.7 – 2006.6 Assistant Professor, Department of Entomology and Plant Pathology, Oklahoma State University
2006.7 – 2009.6 Associate Professor, Department of Entomology and Plant Pathology, Oklahoma State University
2009.7 – 2016.6 Professor, Department of Entomology and Plant Pathology, Oklahoma State University
2016.7 – present Regents Professor, Department of Entomology and Plant Pathology, Oklahoma State University

Teaching Experience

Developed and taught *Insect Molecular Biology*, a 3-credit-hour course which covers: 1) fundamental principles of modern genetics, genomics, biochemistry, immunology, and cell biology of insects; 2) techniques of insect molecular biology and their applications to entomological problems.

Revamped and co-taught *Advanced Biotechnology Methods*, a lab course required for the M.S. degree program in Entomology and Plant Pathology at OSU. It provides an overview of biotechnology and hand-on experience of molecular techniques.

Updated and taught *Insect Biochemistry*, a 3-credit-hour course that introduce students to biochemical processes, focusing on those unique to insects.

Graduate students advised and graduated (*): Snehilata Gupta (MS*), Zhen Zou (PhD*), Zhiqiang Lu (PhD*), Rudan Huang (MS*), Subrahmanyam Rayaprolu (MS*), Siwei Liu (PhD*), Niranji Sumathipala (MS*), Picheng Zhao (PhD*), Fan Yang (PhD*), Xiufeng Zhang (PhD*), Yingxia Hu (PhD*), Shuguang Zhang (MS*), Ramesh Gunaratna (MS*), Xiaolong Cao (PhD*), Yan He (PhD*), Xuesong He (MS*), Krishna Bhattari (MS*), Mansi Gulati (PhD), Qiao Jin (PhD)

Research Support

NIH – GM58634	“Biochemistry of Prophenoloxidase Activating Proteinase” Total amount \$800,000 (5-year grant), 3/1/1999–2/28/2004
NIH – GM58634	“Initiation and Regulation of Prophenoloxidase Activation” Total amount \$940,000 (4-year grant), 3/1/2005–2/28/2009
NIH – GM58634	“Initiation and Regulation of Immune Proteinase Pathways” Total amount \$940,000 (4-year grant + extension), 9/15/2009–8/31/2015
NIH – AI112662	“Prophenoloxidases of <i>Anopheles gambiae</i> ” Total amount \$380,548 (2-year grant), 6/10/2014–5/31/2017

Member of Editorial Boards for Journals

Insect Biochemistry and Molecular Biology
Insect Molecular Biology
Insect Science
Frontiers in Invertebrate Physiology
Invertebrate Immunity
Journal of Insect Science

Peer-reviewed Journal Articles

(The 118 publications including journal articles, reviews and book chapters have been cited 9,582 times with an h-index of 49 as of 2017-10-08.)

1. Sun, Y., Gu, D., Wu, A., Zhang, W., Xu, A., Jiang, H., Zhong, Y., Zhang, Z. (1990) Technology of divalent engineered diarrhea vaccine production by high cell density fermentation and the antigen overproduction. *Chinese J. Biotechnol.* **6**, 96–101.
2. Gu, D., Wu, A., Xu, A., Jiang, H., Zhong, Y., Sun, Y. (1991) Study on the production of diarrhea vaccine (K88, K99) by recombinant techniques. *Chinese J. Biotechnol.* **7**, 62–65.
3. Jiang, H., Wang, Y., Kanost, M.R. (1994) Mutually exclusive exon use and reactive center diversity in insect serpins. *J. Biol. Chem.* **269**, 55–58.
4. Jiang, H., Mulnix, A.B., Kanost, M.R. (1995) Expression and characterization of recombinant *Manduca sexta* serpin-1B and site-directed mutants that change its inhibitory selectivity. *Insect Biochem. Mol. Biol.* **25**, 1093–1100.
5. Jiang, H., Wang, Y., Kanost, M.R. (1996) Primary structure of ribosomal proteins S3 and S7 from *Manduca sexta*. *Insect Mol. Biol.* **5**, 31–38.
6. Jiang, H., Wang, Y., Huang, Y., Mulnix, A., Kadel, J., Cole, K., Kanost, M.R. (1996) Organization of serpin gene-1 from *Manduca sexta*: evolution of a family of alternate exons encoding the reactive site loop. *J. Biol. Chem.* **271**, 28017–28023.
7. Jiang, H., Kanost, M.R. (1997) Characterization and functional analysis of twelve naturally occurring reactive site variants of serpin-1 from *Manduca sexta*. *J. Biol. Chem.* **272**, 1082–1087.
8. Jiang, H., Wang, Y., Korochkina, S.E., Beneš, H., Kanost, M.R. (1997) Molecular cloning of cDNAs for two prophenoloxidase subunits from the malaria vector, *Anopheles gambiae*. *Insect Biochem. Mol. Biol.* **27**, 693–699.
9. Jiang, H., Wang, Y., Ma, C., Kanost, M.R. (1997) Subunit composition of pro-phenol oxidase from *Manduca sexta*: molecular cloning of subunit proPO-p1. *Insect Biochem. Mol. Biol.* **27**, 835–850.

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11. Zang, X., Yazdanbakhsh, M., Jiang, H., Kanost, M.R., Maizels, R.M. (1999) A novel serpin expressed by blood-borne microfilariae of the parasitic nematode *Brugia malayi* inhibits human neutrophil serine proteinases. *Blood* **94**, 1418–1428.
12. Jiang, H., Wang, Y., Kanost, M.R. (1999) Four serine proteinases expressed in *Manduca sexta* hemocytes. *Insect Mol. Biol.* **8**, 39–53.
13. Li, J., Wang, Z., Canagarajah, B., Jiang, H., Kanost, M.R., Goldsmith, E.J. (1999) The structure of active serpin 1K from *Manduca sexta*. *Structure* **7**, 103–109.
14. Wang, Y., Jiang, H., Kanost, M.R. (1999) Biological activity of *Manduca sexta* paralytic and plasmatocyte spreading peptide and primary structure of its hemolymph precursor. *Insect Biochem. Mol. Biol.* **29**, 1075–1086.
15. Kramer, K.J., Kanost, M.R., Hopkins, T.L., Jiang, H., Zhu, Y., Xu, R., Kerwin, J.L., Turecek, F. (2001) Oxidative conjugation of catechols with proteins in insect skeletal systems. *Tetrahedron*, **57**, 385–392.
16. Gan, H., Wang, Y., Jiang, H., Mita, K., Kanost, M.R. (2001) A bacteria-induced, intracellular serpin in granular hemocytes of *Manduca sexta*. *Insect Biochem. Mol. Biol.*, **31**, 887–898.
17. Wang, Y., Jiang, H., Kanost, M.R. (2001) Expression and purification of *Manduca sexta* prophenoloxidase-activating proteinase precursor (proPAP) from baculovirus-infected insect cells. *Protein Express. Purif.*, **23**, 328–337.
18. Ligoxygakis, P., Pelte, N., Ji, C., Leclerc, V., Duvic, B., Belvin, M., Jiang, H., Hoffmann, J.A., Reichhart, J-M. (2002) A serpin mutant links Toll activation to melanization in the host defence of *Drosophila*. *EMBO J.*, **21**, 6330–6337.
19. Yu, X-Q., Jiang, H., Wang, Y., Kanost, M.R. (2003) Nonproteolytic serine proteinase homologs are involved in phenoloxidase activation in the tobacco hornworm, *Manduca sexta*. *Insect Biochem. Mol. Biol.* **33**, 197–208
20. Ross, J., Jiang, H., Kanost, M.R., Wang, Y. (2003) Serine proteases and their homologs in the *Drosophila melanogaster* genome: an initial analysis of sequence conservation and phylogenetic relationship. *Gene*, **304**, 117–131.
21. Jiang, H., Wang, Y., Yu, X-Q., Kanost, M.R. (2003) Prophenoloxidase-activating proteinase-2 (PAP-2) from hemolymph of *Manduca sexta*: a bacteria-inducible serine proteinase containing two clip domains. *J. Biol. Chem.* **278**, 3552–3561.
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23. Jiang, H., Wang, Y., Yu, X-Q., Zhu, Y., Kanost, M.R. (2003) Prophenoloxidase-activating proteinase-3 (PAP-3) from *Manduca sexta* hemolymph: a clip-domain serine proteinase regulated by serpin-1J and serine proteinase homologs. *Insect Biochem. Mol. Biol.* **33**, 1049–1060.
24. Zhu, Y., Wang, Y., Gorman, M., Jiang, H., Kanost, M.R. (2003) *Manduca sexta* serpin-3 regulates prophenoloxidase activation in response to infection by inhibiting prophenoloxidase-activating proteinases. *J. Biol. Chem.* **47**, 46556–46564.
25. Dittmer, N., Sudermann, R., Jiang, H., Zhu, Y., Gorman, M.J., Kramer, K., Kanost, M.R. Characterization of cDNAs encoding putative laccase-like multicopper oxidases and developmental expression in the tobacco hornworm, *Manduca sexta*, and the malaria

- mosquito, *Anopheles gambiae*. *Insect Biochem. Mol. Biol.* **34**, 29–41.
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 27. Wang, Y., Jiang, H. (2004) Purification and characterization of *Manduca sexta* serpin-6: a serine proteinase inhibitor that selectively inhibits prophenoloxidase-activating proteinase-3. *Insect Biochem. Mol. Biol.* **34**, 387–395.
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- proteinases. *Genomics*, **87**, 399–409
41. Wang, Y., Jiang, H. (2006) Interaction of β -1,3-glucan with its recognition protein activates hemolymph proteinase 14, an initiation enzyme of the prophenoloxidase activation system in *Manduca sexta*. *J. Biol. Chem.* **281**, 9271–9278.
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 47. Wang, Y., Jiang, H. (2007) Reconstitution of a branch of *Manduca sexta* prophenoloxidase activation cascade *in vitro*: Snake-like hemolymph proteinase 21 cleaved by HP14 activates prophenoloxidase-activating proteinase-2 precursor. *Insect Biochem. Mol. Biol.* **37**, 1015–1025.
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- receptors: insights into molecular recognition of invading pathogens in *Manduca sexta*. *Insect Biochem. Mol. Biol.* **62**, 38–50.
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