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Publications:

1. Haley S.D., Johnson J.J., Westra P.H., Peairs F.B., Stromberger J.A., Heaton E.E., Seifert S.A., Kottke R.A., Rudolph J.B., Bai B., Bowden R.L., **Chen M.S.**, Chen X., Jin Y., Kolmer J.A., and Seabourn B.W. (2009) Registration of 'Thunder CL' Wheat. *Journal of Plant Registration*. In press.
2. El Bouhssini M., **Chen M.-S.**, Lhaloui S., Zharmukhamedova G., and Rihawi F. (2009) Virulence of Hessian fly (Diptera: Cecidomyiidae) in the Fertile Crescent. *Journal of Applied Entomology*. In press.
3. **Chen M.S.**, Echegaray E., Whitworth, R.J., Wang H., Sloderbeck, P.E., Knutson, A., Giles K.L. and Royer T.A. (2009) Virulence analysis of Hessian fly (*Mayetiola destructor*) populations from Texas, Oklahoma, and Kansas. *Journal of Economic Entomology*. 102(2): 774-780.
4. Shukle R.H., Mittapalli O, Morton P.K., and **Chen M.S.** (2009) Characterization and expression analysis of a gene encoding a secreted lipase-like protein expressed in the salivary glands of the larval Hessian fly, *Mayetiola destructor* (Say). *Journal of Insect Physiology*. 55 (2): 104-111.
5. Wu J.-X., Liu X.-M., Zhang S.-Z., Y.-C. Zhu, Whitworth R.J., **Chen M.-S.** (2008) Differential responses of wheat inhibitor-like genes to Hessian fly, *Mayetiola destructor*, attacks during compatible and incompatible interactions. *Journal of Chemical Ecology*. 34:1005-1012.
6. Mutti N.S., Pappan L.K., Begum K., Pappan K., **Chen M.S.**, Park Y., Reese J.C., and Reeck G.R. (2008) Cloning and characterization of a novel transcript from the salivary glands of pea aphid, *Acyrtosiphon pisum* (Harris). *Proceeding of National Academy of Science USA*. 105(29):9965-9969.
7. Ibrahim, A.M.H., Haley, S.D., Baenziger, P.S., Jin, Y., Langham, M.A.C., Rickertsen, J., Kalsbeck, S., Little, R., Ingemansen, J., Chung, O.K., Seabourn, B.W., Bai, G.H., **Chen, M.S.**, McVey, D.V. (2008) Registration of 'Alice' Wheat. *Journal of Plant Registration*. 2:110-114.
8. Ibrahim, A.M.H., Haley, S.D., Baenziger, P.S., Jin, Y., Langham, M.A.C., Rickertsen, J., Kalsbeck, S., Little, R., Ingemansen, J., Chung, O.K., Seabourn, B.W., Bai, G.H., **Chen, M.S.**, McVey, D.V. (2008) Registration of 'Darrell' Wheat. *Journal of Plant Registration*. 2:115-121.
9. Baenziger, P.S., Beecher, B., Graybosch, R.A., Ibrahim, A.H.M., Baltensperger, D.D., Nelson, L.A., Jin, Y., Wegulo, S.N., Watkins, J. E., Hatchet, J.H., **Chen, M.S.**, and Bai, G. (2008) Registration of 'NE01643' wheat. *Journal of Plant Registration*. 2:36-42.
10. **Chen, M.S.**, Zhao, H.X., Zhu, Y.C., Scheffler, B., Liu, X.M., Liu, X., Hulbert, S., and Stuart, J.J. (2008) Analysis of Transcripts and Proteins Expressed in the Salivary Glands of Hessian Fly (*Mayetiola destructor*) Larvae. *Journal of Insect Physiology*. 54:1-16.

11. Zhu, L., Liu, X.M., Liu, X., Jeannotte, R., Reese, J.C., Harris, M., Stuart, J.J., and **Chen, M.S.** (2008) Hessian Fly (*Mayetiola Destructor*) Attack Causes Dramatic Shift in Carbon and Nitrogen Metabolism in Wheat. *Molecular Plant-Microbe Interactions*. 21:70-78.
12. Liu, X.L., Bai, J., Huang L., Zhu, L., Liu, X., Weng, N., Reese J.C., Harris, M., Stuart, J.J., and **Chen, M.S.** (2007) Gene Expression of Different Wheat Genotypes during Attack by Virulent and Avirulent Hessian Fly (*Mayetiola destructor*) Larvae. *Journal of Chemical Ecology*. 33:2171-2194.
13. Prabhakar, S. **Chen, M.S.**, Elpidina, E.N., Vinokurov, K.S., Smith, C.M., and Oppert, B. (2007) Sequence analysis and molecular characterization of larval midgut cDNA transcripts encoding peptidases from the yellow mealworm, *Tenebrio molitor* L. *Insect Molecular Biology*. 16(4):455–468.
14. Zhu, Y.C., Snodgrass, G.L., and **Chen, M.S.** (2006) Comparative study on glutathione S-transferase activity, cDNA, and gene expression between Malathion susceptible and resistant strains of the tarnished plant bug, *Lygus lineolaris*. *Pesticide Biochemistry and Physiology*. 87(1):62-72.
15. Zhu, Y.C., Snodgrass, G.L., and **Chen, M.S.** (2006) Interaction of Cry1Ac toxin (*Bacillus thuringiensis*) and proteinase inhibitors on the growth, development, and midgut proteinase activities of the bollworm, *Helicoverpa zea*. *Pesticide Biochemistry and Physiology*. 87(1):39-46.
16. Zhao, H.-X., Liu, X.-M., and **Chen, M.S.** (2006) *H22*, a major resistance gene to the Hessian fly (*Mayetiola destructor*), is mapped to the distal region of wheat chromosome 1DS. *Theoretical and Applied Genetics*. 113(8):1491-1496.
17. **Chen, M. S.** Liu, X., Zhu, Y.C., Reese, J.C., and Wilde, G.E. (2006). Genes Encoding a group of related small secreted proteins from the gut of Hessian fly larvae [*Mayetiola Destructor* (Say)] *Insect Science*. 13:339-348.
18. Maddur, A.A., Liu, X.M., Zhu, Y.C., Fellers, F.P., Oppert, B., Park, Y.S., Bai, J., Wilde, G.E., and **Chen, M.S.** (2006) Cloning and characterization of protease inhibitor-like cDNAs from the Hessian fly *Mayetiola destructor* (Say). *Insect Molecular Biology*. 15(4):485-496.
19. Liu, X., Fellers, J.P., Zhu, Y.C., Mutti, N.S., El-Bouhssini, M., **Chen, M.S.** (2006) Cloning and characterization of cDNAs encoding carboxypeptidase-like proteins from the gut of Hessian fly [*Mayetiola destructor* (Say)] larvae. *Insect Biochemistry and Molecular Biology*. 36:665-673.
20. **Chen, M. S.** Fellers, J.P., Zhu, Y.C., Stuart, J.J. Hulbert., S., El-Bouhssini, and Liu, X. (2006). A super-family of genes coding for secreted salivary gland proteins from the Hessian fly, *Mayetiola destructor*. *Journal of Insect Science*. 6:12 (<http://insectscience.org/6.12/>).
21. Lobo, N.F., Behura, S.K., Aggarwal, R., Hill, C.A., **Chen, M.S.**, Collins, F., Stuart, J.J. (2006) Genomic analysis of a 1 Mb region near the telomere of Hessian fly chromosome X2 and avirulence gene *vH13*. *BMC Genomics*. 7:7.
22. Baenziger, P.S., Beecher, B., Graybosch, R.A., Baltensperger, D.D., Nelson, L.A., Krall, J.M., Jin, Y., Watkins, J.E., Lyon, D.J., Martin, A.R., **Chen, M.S.**, and Bai, G. (2006) Registration of 'Infinity CL' wheat. *Crop Science*. 46:975-977
23. Baenziger, P.S., Beecher, B. , Graybosch, R.A., Baltensperger, D.D., Nelson, L.A., Jin, Y., Hatchett, J.H., **Chen, M.S.**, and Bai, G. (2006) Registration of 'Hallam' wheat. *Crop Science*. 46:977-979.
24. Liu, X.M., Brown-Guedira, G. L., Hatchett, J. H., Owuoche, J. O., and **Chen, M. S.** (2005) Genetic characterization and molecular mapping of a Hessian fly-resistance gene transferred from *T. turgidum* ssp. *dicoccum* to common wheat. *Theoretical and Applied Genetics* 111:1308-1315.
25. Liu, X.M., Gill, B.S., and **Chen, M.S.** (2005) Hessian fly resistance gene H13 is mapped to a distal cluster of resistance genes in chromosome 6Ds of wheat. *Theoretical and Applied Genetics*. 111:243-249.

26. Liu, X.M., Fritz, A.K., Reese, J.C., Wilde, G.E., Gill, B.S., and **Chen, M.S.** (2005) *H9, H10, and H11* compose a cluster of Hessian fly-resistance genes in the distal gene-rich region of wheat chromosome 1AS. *Theoretical and Applied Genetics*. 110:1473-1480.
27. Brown-Guedira, G.L., Hatchett, J.H. Liu, X.M., Fritz, A.K., Owouche, J.O., Gill, B.S., Sears, R.G., Cox, T.S., and **Chen, M.S.** (2005) Registration of KS99WGRC42 Hessian fly resistant hard red winter wheat germplasm. *Crop Science*. 45:805-805.
28. Zhu, Y.C., Liu, X., Maddur, M., Oppert, B., and **Chen M.S.** (2005) Cloning and characterization of chymotrypsin- and trypsin-like cDNAs from the gut of the Hessian fly [*Mayetiola destructor* (say)]. *Insect Biochemistry and Molecular Biology*. 35(1):23-32.
29. Zhu, Y.C., Snodgrass, G.L., and **Chen, M.S.** (2004) Enhanced esterase gene expression and activity in a malathion-resistant strain of the tarnished plant bug, *Lygus lineolaris*. *Insect Biochemistry and Molecular Biology*. 34(11):1175-1186.
30. Behura, S., Fernando, H., Rider, S.D.Jr., **Chen, M.S.**, Jackson, S., and Stuart, J.J. (2004) A physically anchored genetic map and linkage to avirulence reveals recombination suppression over the proximal region of Hessian fly chromosome A2. *Genetics*. 167:343-355.
31. Liu, X.M., Fellers, J.P., Wilde, G.E., Stuart, J.J. and **Chen, M.S.** (2004) Characterization of two genes expressed in the salivary glands of the Hessian fly [*Mayetiola destructor* (Say)]. *Insect Biochemistry and Molecular Biology*. 34(3):229-237.
32. **Chen, M.S.**, Fellers, J.P., Stuart, J.J. Reese, J.C. and Liu, X.M. (2004) A group of related cDNAs encoding secreted proteins from Hessian fly [*Mayetiola destructor* (Say)] salivary glands. *Insect Molecular Biology*. 13(1):101-108.
33. Baenziger, P.S., Beecher, B., Graybosch, R.A., Baltensperger, D.D., Nelson, L.A., Krall, J.M., McVey, D.V., Watkins, J.E., Hatchett, J.H., and **Chen, M.S.** (2004) Registration of 'Goodstreak' wheat. *Crop Science*. 44:1473-1474.
34. Baenziger, P.S., Beecher, B., Graybosch, R.A., Baltensperger, D.D., Nelson, L.A., McVey, D.V., Watkins, J.E., Hatchett, J.H., and **Chen, M.S.** (2004) Registration of 'Harry' wheat. *Crop Science*. 44:1474-1475.
35. **Chen, M.S.**, Goswami, P., and Laszlo, A. (2002) Differential accumulation of U14 snoRNA and hsc70 mRNA under various stress conditions in Chinese hamster cells. *Cell Stress and chaperones*. 7(1):65-72.
36. **Chen, M.S.**, Laszlo, A., Higashikubo, R., and Roti Roti, J.L. (2001) Multiple splicing forms of human Rad17 and their response to X-ray radiation. *Gene*. 277:145-152.
37. **Chen, M.S.**, Laszlo, A., Roti Roti, J., and Hunt, C. (2001) Determination of the impact of DNA damage sites on DNA duplex stability by a competitive mobility shift assay (CMSA). *Analytical Biochemistry*. 298:121-124.
38. **Chen, M.S.**, Roti Roti, J.L, and Laszlo, A (1999) Hsc40, a new member of the hsp40 family, exhibits similar expression profile to that of hsc70 in mammalian cells. *Gene*. 238:333-341.
39. **Chen, M.S.** and Laszlo, A. (1999) Unique features of Chinese hamster S13 gene relative to its human and *Xenopus* analogs. *DNA and Cell Biology*. 18(6):463-470.
40. **Chen, M.S.**, Laszlo, A., Roti Roti, J.L., and Hunt, C. (1996) Detection of single base mutations by a competitive mobility shift assay. *Analytical Biochemistry*. 239:61-69.
41. **Chen, M.S.** Featherstone, T., and Laszlo, A. (1996) Amplification and altered expression of the hsc70/U14 snoRNA gene in a heat resistant Chinese hamster cell line. *Cell Stress and chaperones*. 1:47-61.
42. **Chen, M.S.**, Fornace, A., and Laszlo, A. (1996) Characterization of an hsp70 related clone encoding a 33 kD protein with homology to a protein which associates with polysomes. *Biochim. Biophys. Acta*. 1297:124-126.
43. Feng, G.H., Richardson, M., **Chen, M.S.**, Kramer, K.J., Morgan, T.D., and Reeck, G.R. (1996) α -Amylase inhibitors from wheat: a sequences and patterns of inhibition of insect and human α -amylases. *Insect Biochemistry and Molecular Biology*. 26:419-426.

44. **Chen, M.S.**, Johnson, B., Wen, L., Muthukrishnan, S., Kramer, K. J., Morgan, T.D., and Reeck, G.R. (1992) Rice Cystatin: Bacterial expression, purification, cysteine proteinase inhibitory activity, and insect growth suppressing activity of a truncated form of the protein. *Protein Expression and Purification*. 3:41-49.
45. **Chen, M.S.**, Feng, G.H., Zen, K.C., Richardson, M., Valdes-Rodrigues, S., Reeck, G. R., and Kramer, K. J. (1992) α -Amylases from three species of stored grain Coleoptera and their inhibition by wheat and corn proteinaceous inhibitors. *Insect Biochemistry and Molecular Biology*. 22(3):261-268.
46. Feng, G.H., **Chen, M.S.**, Kramer, K.J., and Reeck, G.R. (1991) α -Amylase inhibitors from rice: fractionation and selectivity towards insects, mammalian and bacterial α -Amylases. *Cereal Chemistry*. 68(5):516-521.
47. Feng, G.H., **Chen, M.S.**, Kramer, K.J., and Reeck, G.R. (1991) Reversed-phase high-performance liquid chromatographic separation of wheat proteinaceous inhibitors of insect and mammalian α -amylase. *Cereal Chemistry*. 68(1):95-99.

Review Articles and Book Chapters

48. **Chen, M.S.** (2008) Inducible direct plant defense against insect herbivores – A review. *Insect Science*. 15:101-114.
49. Stuart, J.J., **Chen, M.S.**, and Harris, M. (2008) Hessian fly. In *Genome Mapping and Genomics in Animals, Volume 1: Genome Mapping and Genomics in Arthropods (Hunter and Kole eds.)*. Pp. 93-100. Springer, Berlin, Heidelberg, New York
50. **Chen, M.S.** (2006) Book Review: Entomological Research: Progress and Prospects [Tong-Xian Liu and Le Kang (eds.)] *Insect Science*. 13:235.

Relevant Media Reports

1. New Defense Against Hessian Fly May Lie in Insect's Saliva. USDA-ARS News and Events, October 17, 2003 .
2. FAO Plant Breeding News: New Defense Against Hessian Fly May Lie in Insect's Saliva. Food and Agriculture Organization (FAO) of the United Nations, FAO Plant Breeding News, October 24, 2003.
3. New Defense against the Hessian fly.
<http://www.nhagintheclash.org/text/Januarynew2004.pdf>
4. How Hessian fly harass wheat. <http://www.allbusiness.com/agriculture-forestry-fishing-hunting/917989-1.html>
5. New Hessian fly research.
<http://www.wheat.state.ok.us/Web%20Site/News%20and%20Info/news%20and%20info/Wheat%20Connection/April%2007.pdf>
6. Once Again . . . Waiting in the Wings . . . HESSIAN FLIES! (by Don Comis and Erin Peabody) *Agricultural Research* magazine, January, 2007. Page 4-7.
7. Scientists Probe "Fly Spit" for Clues to Serious Wheat Pest (by Erin Peabody). USDA-ARS News and Events, January 7, 2007. <http://www.ars.usda.gov/is/pr/2007/070108.htm>.

Honor: 1988 – 1990, Rockefeller Foundation Graduate Fellowship
 2001, Radiation Oncology Meritorious Service Award
 2003, USDA outstanding performance award
 2004, USDA outstanding performance award
 2005, USDA superior performance award
 2006, USDA superior performance award

2007, USDA superior performance award
2008, USDA outstanding performance award

Current Grants and Contracts:

1. **Chen M.S.** and Trick H. Molecular Genetic Interactions of Wheat Resistance and Hessian Fly Avirulence. (\$129,728. USDA-NRI, subcontract from Purdue University, 2009-2012)
2. Whitworth R.J., **Chen M.S.**, Sloderbeck P. and Ahmad A. Population Analysis and Integrated Management of the Hessian fly in Kansas. (\$25,000. Kasnas Wheat Commission, 2008-2009)
3. Brown, S., Kanost, M., Ganta, R., Smith, M., and **Chen, M.S.** Arthropod Genomic Center: KSU Targeted Excellence. (\$2,000,000. KSU, 2006-2011)

Previous Grants and Contracts:

1. Harris MO, Freeman, T, Stuart, JJ, and **Chen MS** Phenotypic Analysis of Grass Resistance Genes and Hessian Fly Avirulence Genes. (\$396,205. USDA-NRI, 2006-2009)
2. **Chen, M.S.** and Hulbert S. Functional Genomics of Hessian Fly Virulence in Wheat. (\$202,864. USDA-NRI, subcontract from Purdue University, 2004-2007)
3. Grant: Predicting the durability of host resistance and Hessian fly virulence. (Co-principle Investigator, \$99,850 USDA-IPM, 2003-2006)
4. Grant: Signal Transduction in Wheat-Hessian Fly Interaction. (Principle Investigator, \$60,000 KSU-PBC, 2003-2005)
5. Grant: cDNAs from Hessian fly salivary gland. (Co-Investigator, \$7,000 KSU wheat research center, 2001-2002)
6. Grant: Heat-shock Cognate Protein Partners and Cellular Heat Resistance. (Principle Investigator, \$10,000 Radiation Oncology Center, 2001-2002)
7. Grant: Cell Stress Response and Radiosensitivity. (Co-leader for project 1, 2, and 3, \$4,220,000 National Cancer Institute, NIH, P01CA75556-01NCI, 1997-2002)
8. Contract: Research and *in vivo-in vitro* Testing for Carcinogenic Potential of FMCW and CDMA 850 mHz Electromagnetic Radiation. (Leader for project 8, \$2,500,000 Motorola, 1995 –1999)
9. Grant: Molecular Correlates of Tumor Proliferation and Radiation Resistance. (Principle Investigator, \$10,000, Radiation Oncology Center, 1994 - 1995)

Education:

Ph.D. Biochemistry – Kansas State University – 1991
M.S. Entomology – Fujian Agricultural University – 1984
B.S. Plant Protection – Hunan Agricultural University – 1981

Professional Experience:

2001 – Current	Lab director and Research Entomologist USDA-ARS Adjunct associate professor Kansas State University, Manhattan, KS 66506
1993 – 2000	Instructor, Section of Cancer Biology Washington University, St. Louis, MO 63108
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