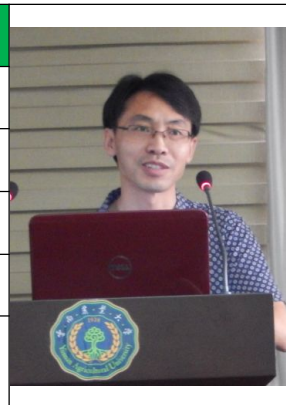


CURRICULUM VITAE

Personal Information			
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Research Interest			
<ul style="list-style-type: none"> • Molecular mechanisms of fungicide (DMIs, QoIs and SDHIs) resistance in peach brown rot fungi <i>Monilinia</i> spp. • Molecular mechanisms of resistance of rice blast fungus <i>Magnaporthe oryzae</i> to fungicide Isoprothiolane and rice false smut fungus <i>Ustilaginoidea virens</i> to DMI and QoI fungicides. • Interaction between rice false smut fungus and rice, integrated management of rice false smut disease. 			
Professional Memberships			
<ul style="list-style-type: none"> • The American Phytopathological Society (APS), 2006-present. • The American Society for Microbiology, 2014-present. • The Phytopathological Society of Japan, 2001-2006. • The Chinese Society for Plant Pathology, 1996-2000,2008-present. • Hubei Province Society for Plant Pathology, 2008-present. 			
Other Roles			
<ul style="list-style-type: none"> • Reviewer for international journals <i>Scientific Reports</i>, <i>Plos One</i>, <i>Pest Management Science</i>, <i>Plant Disease</i>, <i>Plant Pathology</i>, <i>European Journal of Plant Pathology</i>, <i>Pesticide Biochemistry and Physiology</i>, <i>Hortscience</i>, <i>FEMS Letter</i>, <i>African Journal of Microbiology Research</i>, <i>African Journal of Agricultural Research</i>, <i>Journal of Integrative Agriculture</i>. 			
Education & Working Experience			



EDUCATION

- Ph.D. in *Molecular Plant Pathology*

Kagoshima University, Kagoshima, Japan, 2003.4-2006.3

Dissertation: Genetic Analysis and Chromosomal Assignment of Cultivar-Specific Avirulence Genes in Rice Blast Fungus

- Master of Agriculture in *Plant Pathology*

Saga University, Saga, Japan, 2001.4-2003.3

Analysis of Avirulence Genes in Rice Blast Fungus *Magnaporthe oryzae*

- Bachelor of Agriculture in *Plant Pathology*

China Agriculture University, Beijing, China, 1991.9-1995.7

PROFESSIONAL EXPERIENCE

Professor: 2008.8-present, College of Plant Science and Technology & Key Lab of Crop Disease Monitoring & Safety Control in Hubei Province, Huazhong Agricultural University, Wuhan 430070, China.

- Molecular mechanisms of fungicide (DMIs, QoIs and SDHIs) resistance in peach brown rot fungi *Monilinia* spp.
- Molecular mechanisms of resistance of rice blast fungus *Magnaporthe oryzae* to fungicide Isoprothiolane and rice false smut fungus *Ustilagoideia virens* to DMI and QoI fungicides.
- Identification of resistance of rice cultivars to rice false smut disease and integrated management of rice false smut fungus.

Postdoctoral Research Associate: 2006.4-2008.7, the Department of Entomology, Soils and Plant Sciences, Clemson University, Clemson, SC 29634-0315, USA. Research Advisor: Dr. Guido Schnabel: (864) 656-6705, schnabe@clemson.edu

- Resistance risk assessment of brown rot fungus *Monilinia fructicola* to quinone outside inhibitor (QoI), demethylation inhibitor (DMI), and benzimidazole (BZI) fungicides.
- Conduction of expression analysis of the cytochrome P450 lanosterol 14 α -demethylase gene (*MfCYP51*) and ABC transporter gene (*MfABC1*) in *M. fructicola* isolates.
- Sequencing *MfCYP51* gene and upstream region to identify mechanism causing DMI fungicide resistance in *M. fructicola*.
- Cloning and sequence analysis of cytochrome b gene (Cyt b) to identify mechanism causing QoI fungicide resistance in *M. fructicola*.
- Development of molecular based methods to rapidly detect DMI and/or QoI fungicides resistant isolates.

Ph.D. Graduate Research Assistant: 2003.4-2006.3, the United Graduate School of Agricultural Sciences, Kagoshima University, Kagoshima 890-8580, Japan. Research Advisors: Dr. Kusaba Motoaki: (81) 952-288727, mkusaba@cc.saga-u.ac.jp and Dr. Yaegashi Hiroshi: (81)197-651597, yae3h@amber.plala.or.jp

- Mapped three avirulence genes of *M. oryzae* by using RAPD, RFLP and telomeric markers.
- Chromosomal assignment of three avirulence genes *AvrPik*, *AvrPiz* and *AvrPiz-t* on the 1.6-Mb chromosome, chromosome 3 and chromosome 7 of *M. oryzae*, respectively, by using CHEF electrophoresis combined with Southern hybridization.
- Characterized the significance of mini-chromosome in *M. oryzae*.

M.S. Graduate Research Assistant: 2001.4-2003.3, Faculty of Agriculture, Saga University, Saga, 840-8502, Japan. Research Advisor: Dr. Yaegashi Hiroshi: (81)197-651597, yae3h@amber.plala.or.jp

- Genetically analyzed the relationships of three pairs of avirulence genes in the same gene families, respectively.
- Identified three avirulence genes *AvrPik*, *AvrPiz* and *AvrPiz-t* in rice-field isolates.

Research Assistant: 1995.7-2000.6, Plant Protection Research Institute, Yunnan Academy of Agricultural Sciences, Kunming, Yunnan, China. Research Advisor: Prof. Chengyun Li

- Sampling rice blast fungus *Magnaporthe oryzae* from 6 different counties in Yunnan province.
- Single-spore isolation and maintenance of *M. oryzae* isolates.
- Genetic analysis of avirulence genes in *M. oryzae*.

Research Associate: 2000.7-2000.9, Plant Protection Research Institute, Yunnan Academy of Agricultural Sciences, Kunming, Yunnan, China. Research Advisor: Prof. Chengyun Li

- Identification of avirulence genes in rice blast fungus *M. oryzae*.

Publications

1. Jia, Q., Lv, B., Guo, M. Y., **Luo, C. X.**, Zheng, L., Hsiang, T., Huang, J. B. 2015. Effect of rice growth period, temperature, relative humidity and wetness duration on infection of rice panicles by *Villosiclava virens*. *European Journal of Plant Pathology*, 141:15-25.
2. Yin, L. F., Wang, F., Zhang, Y., Kuang, H., Schnabel, G., Li, G. Q., **Luo, C. X.** 2014. Evolutionary analysis revealed the horizontal transfer of the *Cyt b* gene from Fungi to Chromista. *Molecular Phylogenetics and Evolution*, 76:155-161 (Corresponding author).
3. Wang, F., Zhang, S., Liu, M. G., Lin, X. S., Liu, H. J., Peng, Y. L., Lin, Y., Huang, J. B. and **Luo, C. X.** 2014. Genetic diversity analysis reveals that geographical environment plays a more important role than rice cultivars on population selection of *Villosiclava virens*. *Applied Environmental Microbiology*, 80:2811-2820 (Corresponding author).
4. Chen, S. N., Shang, Y., Wang, Y., Schnabel, G., Lin, Y., Yin, L. F., **Luo, C. X.** 2014. Sensitivity of *Monilinia fructicola* from peach farms in China to four fungicides and characterization of isolates resistant to carbendazim and azoxystrobin. *Plant Disease*, 98: 1555-1560 (Corresponding author).
5. Hu, M. J., Ma, Q. Y., Li, K. B., Lin, Y., and **Luo, C. X.** 2014. Exploring mechanism of resistance to Isoprothiolane in *Magnaporthe oryzae*, the causal agent of rice blast. *Journal of Plant Pathology*, 96: 249-259 (Corresponding author).
6. Yin, L. F., Chen, G. K., Chen, S. N., Du, S. F., Li, G. Q., **Luo, C. X.** 2014. First Report of Brown Rot Caused by *Monilia mumeicola* on Chinese Sour Cherry in Chongqing municipality, China. *Plant Disease*, 98: 1009. <http://dx.doi.org/10.1094/PDIS-01-14-0029-PDN> (Corresponding author).
7. Yin, L. F., Chen, S. N., Cai, M. L., Li, G. Q. and **Luo, C. X.** 2014. First report of brown rot of apricot caused by *Monilia mumeicola*. *Plant Disease*, 98: 694. <http://dx.doi.org/10.1094/PDIS-09-13-0995-PDN> (Corresponding author).
8. Jiang, Y. H., **Luo, C. X.**, Jiang, D. H., Li, G. Q., Huang, J. B. 2014. The complete genomic sequence of a second novel partitivirus infecting *Ustilagoidea virens*. *Archives of Virology*, 7:1865-1868.

9. Jiang, Y. H., Zhang, T. T., **Luo, C. X.**, Jiang, D. H., Li, G. Q., Li, Q. L., Hsiang, T., Huang, J. B. 2014. Prevalence and diversity of mycoviruses infecting the plant pathogen *Ustilaginoidea virens*. *Virus Research*, 195:47-56.
10. Li, X., Fernández-Ortuño, D., Chen, S., Grabke, A., **Luo, C. X.**, Bridges, W. C., and Schnabel, G. 2014. Location-specific fungicide resistance profiles and evidence for stepwise accumulation of resistance in *Botrytis cinerea*. *Plant Disease* 98:1066-1074.
11. Zhang, Y., Zhang, K., Fang, A. F., Han, Y. Q., Yang, J., Xue, M. F., Bao, J. D., Hu, D. W., Zhou, B., Sun, X. Y., Li, S. J., Wen, M., Yao, N., Ma, L. J., Liu, Y. F., Zhang, M., Huang, F., **Luo, C. X.** Zhou, L. G., Li, J. Q., Chen, Z. Y., Miao, J. K., Wang, S., Lai, J. S., Xu, J. R., Hsiang, T., Peng, Y. L., Sun W. X. 2014. Specific adaptation of *Ustilaginoidea virens* in occupying host florets revealed by comparative and functional genomics. *Nature Communications*, 5: 3849. DOI:10.1038/ncomms4849.
12. Yuan, N. N., Chen, S. N., Zhai, L. X., Schnabel, G., Yin, L. F. and **Luo, C. X.** 2013. Baseline sensitivity of *Monilia yunnanensis* to the DMI fungicides tebuconazole and triadimefon. *Eur J Plant Pathol*, 136:651-655, DOI 10.1007/s10658-013-0200-0 (Corresponding author).
13. Yin, L. F., Chen, S. N., Yuan, N. N., Zhai, L. X., Li, G. Q. and **Luo, C. X.** 2013. First report of peach brown rot caused by *Monilinia fructicola* in central and western China. *Plant Disease* 97(9):1255. <http://dx.doi.org/10.1094/PDIS-03-13-0310-PDN> (Corresponding author).
14. Wang, X. M., Liu, Q. L., Wang, H., **Luo, C. X.**, Wang, G. J., and Luo, M. Z. 2013. A BAC based physical map and genome survey of the rice false smut fungus *Villosiclava virens*. *BMC genomics*,14:883-898.
15. Yin, L. F., Hu, M. J., Wang, F., Kuang, H., Zhang, Y. Schnabel, G., Li, G. Q. and **Luo, C. X.** 2012. Frequent gain and loss of introns in fungal cytochrome b genes. *PLoS ONE* 7(11): e49096. doi:10.1371/journal.pone.0049096 (Corresponding author).
16. Hu, M. J., Cox, K. D., Schnabel, G. and **Luo, C. X.** 2011. *Monilinia* species causing brown rot of peach in China. *PLoS ONE*, 6(9): e24990. Doi:10.1371/journal.pone.0024990 (Corresponding author).
17. Hu, M. J., Yin, L. F., Chen, Y., Chen, S. N., Liu, X. L., Chen F. P., and **Luo, C. X.** 2011. A group I intron located downstream of the G143 position of the *Cyt b* gene in *Monilinia fructicola* is present in genetically diverse populations from China. In *Modern Fungicides and Antifungal Compounds VI*, pp 143-150, Dehne, H.W., Deising, H.B., Gisi, U., Kuck, K.H., Russell, P.E., Lyr, H. (Eds.), Deutsche Phytomedizinische Gesellschaft, Braunschweig, Germany (Corresponding author).
18. Hu, M. J., **Luo, C. X.**, Grabke, A. and Schnabel, G. 2011. Selection of a suitable medium to determine sensitivity of *Monilinia fructicola* mycelium to SDHI fungicides. *Journal of Phytopathology*, 159: 616-620 (Corresponding author).
19. Hu, M. J., Chen, Y., Chen, S. N., Liu, X. L., Yin, L. F. and **Luo, C. X.** 2011. First report of brown rot

- of peach caused by *Monilinia fructicola* in southeastern China. *Plant Disease*, 95: 225. (Corresponding author)
20. Grabke, A., Hu, M. J., **Luo, C. X.**, Bryson, P. K. and Schnabel, G. 2011. First report of brown rot of apple caused by *Monilinia fructicola* in Germany. *Plant disease*, 95: 772.
 21. Yin, L. F., **Luo, C. X.**, Kusaba, M. and Yaegashi, H. 2010. Analysis of the abnormal segregation of pathogenicity in *Magnaporthe grisea* by using a genetic cross of *Oryza* and *Eleusine* isolates. *Agricultural Sciences in China*, 9:383-391. (Corresponding author)
 22. **Luo, C. X.**, Hu, M.J., Jin, X., Yin, L. F., Bryson, P. K., and Schnabel, G. 2010. An intron in the cytochrome b gene of *Monilinia fructicola* mitigates the risk of resistance development to QoI fungicides. *Pest Management Sciences*, 66:1308-1315.
 23. **Luo C. X.**, Cox, K. D., Amiri, A., and Schnabel, G. 2008. Occurrence and detection of the DMI resistance-associated genetic element 'Mona' in *Monilinia fructicola*. *Plant Disease*, 92: 1099-1103.
 24. **Luo C. X.**, and Schnabel, G. 2008. The cytochrome P450 lanosterol 14 α -demethylase gene is a demethylation inhibitor fungicide resistance determinant in *Monilinia fructicola* field isolates from Georgia. *Applied and Environmental Microbiology*, 74: 359-366.
 25. **Luo C. X.**, and Schnabel, G. 2008. Adaptation to fungicides in *Monilinia fructicola* isolates with different fungicide resistance phenotypes. *Phytopathology*, 98: 230-238.
 26. Kusaba, M., **Luo C. X.**, Hanamura, H., Misaka, M., Mochida, T., Fujita, Y., and Tosa, Y. 2008. An avirulence gene to rice cultivar K60 is located on the 1.6-Mb chromosome in *Magnaporthe oryzae* isolate 84R-62B. *Journal of General Plant Pathology*, 74: 250-253.
 27. **Luo, C. X.**, Yin, L. F., Ohtaka, K., and, Kusaba, M. 2007. The 1.6 Mb chromosome carrying the avirulence gene *AvrPik* in *Magnaporthe oryzae* isolate 84R-62B is a chimera containing chromosome 1 sequences. *Mycological Research*, 111: 232-239.
 28. **Luo, C. X.**, Yin, L. F., Koyanagi, S., Farman, M. L., Kusaba, M., and Yaegashi, H. 2005. Genetic mapping and chromosomal assignment of *Magnaporthe oryzae* avirulence genes *AvrPik*, *AvrPiz* and *AvrPiz-t*, controlling cultivar specificity on rice. *Phytopathology*, 95: 640-647.
 29. **Luo, C. X.**, Yasuda, N., Iwano, M., Tanaka, H., Kusaba, M., and Yaegashi, H. 2005. Identification of *Magnaporthe oryzae* avirulence gene corresponding to the rice blast resistance gene *Pik-m*. *Bull. Fac. Agr., Saga Univ.*, 90: 15-21.
 30. **Luo, C. X.**, Fujita, Y., Yasuda, N., Hirayae, K., Nakajima, T., Hayashi, N., Kusaba, M., and Yaegashi, H. 2004. Identification of *Magnaporthe oryzae* avirulence genes to three rice blast resistance genes. *Plant Disease*, 88: 265-270.

31. **Luo, C. X.**, Hanamura, H., Sezaki, H., Kusaba, M., and Yaegashi, H. 2002. Relationship between avirulence genes of the same family in rice blast fungus *Magnaporthe grisea*. *Journal of General Plant Pathology*, 68: 300-306._
32. Kusaba, M., Urata, H., Fukunaga, Y., **Luo, C. X.**, Li, C. Y. and Yaegashi, H. 2001. Catenulate conidia formed by mutants of the rice blast fungus. *Southwest China Journal of Agricultural Sciences*, 14: 6-12.
33. Li, C. Y., Yang, Q. Z., Zhen, F. P., **Luo, C. X.**, Li, J. B., and Ise, K. 1997. Cross-fertility and pathogenicity of the blast fungus *Magnaporthe grisea* Sacc. Isolated from cultivated and wild rice in Yunnan. *International Rice Research Notes*, 22: 14-15.

Additional Information

RESEARCH PRESENTATIONS

1. **Luo, C. X.**, Xiao, X. 2013. Exploring mechanism of DCF fungicide resistance in *Sclerotinia sclerotiorum*. (Talk presented at the 15th international *Sclerotinia* forum, Wuhan, China, August 20-24, 2013).
2. **Luo, C. X.**, Jia, Q., Lv, B. 2013. Artificial inoculation and infection process of false smut fungus on rice. (Talk presented at the 2013 Fuzhou International Symposium of Plant Pathology: Biology and Pathogenesis, Fuzhou, China, October 13-15, 2013).
3. **Luo, C. X.**, Hu, M. J., Cox, K. D., Schnabel, G. 2011. *Monilinia* species in China- Surprising facts. (Talk presented at The American Phytopathological Society and The International Association for the Plant Protection Sciences (IAPPS) Joint Meeting, Honolulu, Hawaii, USA, August 6-10, 2011).
4. **Luo, C. X.**, Hu, M. J., Yin, L. F., Chen, Y., Chen, S. N., Liu, X. L., Chen F. P. 2010. A group I intron located downstream of the G143 position of the *Cyt b* gene in *Monilinia fructicola* is present in genetically diverse populations from China. (Talk presented at the 16th International Reinhardsbrunn Symposium, Friedrichroda, Germany, April 25-29, 2010).
5. **Luo, C. X.**, and Schnabel, G. 2007. The *MfCYP51* gene is a DMI fungicide resistance determinant in *Monilinia fructicola* field isolates (Talk presented at the Southeastern Professional Fruit Workers Conference, Byron, GA, USA, October 24-26).
6. **Luo, C. X.**, and Schnabel, G. 2007. Adaptation to fungicides in *Monilinia fructicola* isolates with

different fungicide sensitivity phenotypes. *Phytopathology* 97:S68 (Talk presented at the American Phytopathological Society annual meeting, San Diego, CA, USA, July 28-August 1, 2007).

7. **Luo, C. X.**, Yin, L. F., Koyanagi, S., Kusaba, M., and Yaegashi, H. 2004. Chromosomal location of avirulence gene *AvrPik* in rice blast fungus *Magnaporthe oryzae*, determined by using clamped homogenous electric field (CHEF) electrophoresis. *Japanese Journal of Phytopathology* 70:192-193 (Talk presented at the annual meeting of the Phytopathological Society of Japan, Fukuoka, March 28-30, 2004).
8. **Luo, C. X.**, Koyanagi, S., Yin, L. F., Kusaba, M., and Yaegashi, H. 2004. Genetic mapping of avirulence genes in the rice blast fungus with telomeric markers. *Japanese Journal of Phytopathology* 70:29 (Talk presented at the meeting of the Kyushu Division of the Phytopathological Society of Japan, Miyazaki, September 18, 2003).
9. **Luo, C. X.**, Fujita, Y., Yasuda, N., Hayashi, N., Kusaba, M., and Yaegashi, H. 2003. Identification of avirulence genes in rice blast fungus corresponding to resistance genes *Pik* and *Piz*. *Japanese Journal of Phytopathology* 69:25 (Talk presented at the meeting of the Kyushu Division of the Phytopathological Society of Japan, Isahaya, September 19, 2002).
10. **Luo, C. X.**, Kirayae, K., Nakajima, T., Fujita, Y., Yasuda, N., Hayashi, N., Kusaba, M., and Yaegashi, H. 2002. Linkage analysis of avirulence genes and RAPD markers in rice blast fungus. *Japanese Journal of Phytopathology* 68:172-173 (Talk presented at the annual meeting of the Phytopathological Society of Japan, Osaka, April 3-5, 2002).
11. Schnabel, G. and **Luo, C. X.** 2007. Mechanism of DMI fungicide resistance in *Monilinia fructicola* and evidence of predisposition to QoI fungicides. (Talk presented at the 83rd Annual Cumberland-Shenandoah Fruit Workers Conference, Winchester, VA, November 14-16, 2007)
12. Yin, L. F., Imamura, F., **Luo, C. X.**, Kusaba, M., and Yaegashi, H. 2004. Abnormal segregation of retrotransposon Grasshopper observed in F1 progeny isolates of *Magnaporthe oryzae*. *Japanese Journal of Phytopathology* 70:29-30 (Talk presented at the meeting of the Kyushu Division of the Phytopathological Society of Japan, Miyazaki, September 18, 2003).