

Curriculum Vitae

Feng Chen, Ph.D.

Assistant Professor
Department of Plant Sciences
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Education

Ph.D. in Plant Biology, University of California, Davis, 2000
M.Sc. in Genetics, Institute of Genetics, Chinese Academy of Sciences, China, 1997
B.Sc. in Molecular Biology, Nankai University, China, 1994

Research and Teaching Experience

09/2004 – present Assistant Professor, Department of Plant Sciences, University of Tennessee, Knoxville, Tennessee
02/2001 – 08/2004 Post-doctoral Research Fellow, Department of Molecular, Cellular and Developmental Biology, University of Michigan, Ann Arbor, Michigan.
08/1997 – 12/2000 Graduate Research Assistant, Department of Vegetable Crops, University of California, Davis, California.
08/1995 – 08/1997 Graduate Research Assistant, Institute of Genetics, Chinese Academy of Sciences, Beijing.
05/2000 – 07/2000 Teaching Assistant, Genes and Gene Expression Course, Section of Molecular and Cellular Biology, University of California, Davis.
09/1998 – 03/1999 Lab Teaching Assistant, Genetics Laboratory Course, Section of Molecular and Cellular Biology, University of California, Davis.

Honors and Awards

Professional Development Award, University of Tennessee, 2007
Max-Planck-Institute Scholarship, Max-Planck-Institute for Chemical Ecology, 2001
American Society of Plant Biologists Travel Grant, 2001
Block Grant Award, University of California, Davis, 1999, 2000
GSA Travel Award, University of California, Davis, 1999
William Deardorff Graduate Award, Department of Vegetable Crops, University of California, Davis, 1999
Nankai University Individual Fellowship, Nankai University, 1991 - 1993
Outstanding Student Leadership, Nankai University, 1991 - 1993

Professional and Scholarly Memberships

American Society of Plant Physiologist
International Society of Plant Molecular Biology

Phytochemical Society of North American
Sigma Xi, The Scientific Research Society
Adjunct faculty, Genome Science and Technology Graduate Program, ORNL/UTK

Professional Services

Associate editor: *International Journal of Plant Genomics*

Reviewer: *Plant Journal, Plant Physiology, BMC Plant Biology, Planta, Plant Growth Regulation, Theoretical and Applied Genetics, Journal of Agricultural and Food Chemistry, Plant Signaling and Behavior, Seed Science Research, Enzyme and Microbial Technology, Journal of Plant Physiology, International Journal of Plant Genomics*

Publications

- Ye, X., Busovb, V., Zhao, N., Meilanc, R., McDonnell, L.M., Colemand, H.D., Mansfield, S.D., Chen, F., Li, Y., and Cheng, Z-M. Transgenic poplar trees for forest products, bioenergy, and functional genomics. *Biotechnology Advances*. Submitted
- Zhao, N., Zhuang, X., Shrivastava, G., and Chen, F. Analysis of insect-induced volatiles from rice. In Y Yang eds, *Methods in Molecular Biology: Rice Protocols*. submitted
- Chen, F., Martin R.C., Song SQ, and Nonogaki, H. Seed Development and Germination. In *Plant Tissue Culture: Development and Biotechnology*, eds Trigiano R.N. & Gray D.J., CRC Press, Boca Raton, FL. Submitted
- Lin, J.Y., Wang, N., Pantalone, V.R., and Chen, F. Genetic engineering of fruit flavors. In *Handbook of Flavors from Fruits and Vegetables*, eds Chen, F., Hui, Y.H. and Nollet L.M.L., John Wiley & Sons, submitted
- Ye, X., Yuan, S., Guo, H., Chen, F., Cheng, Z-M., Evolution and divergence of the poplar gene family encoding xyloglucan endotransglucosylase/hydrolases in the coding and promoter regions. *Tree Genet. Genomes*. submitted
- Chen, F., Liu, C-J., Tschaplinski, T.J., and Zhao, N. (2009) Genomics of secondary metabolism in *Populus*: Interactions with biotic and abiotic environments. *Crit. Rev. Plant Sci.* in press
- Panthee, D. and Chen. F. (2009). Genomics of fungal disease resistance in tomato. *Curr. Genomics*. in press
- Chen, F., Al-Ahmad, H., Joyce, B., Zhao, N., Köllner, T.G., Degenhardt, J., Stewart, C.N. (2009). Within-plant distribution and emission of sesquiterpenes from *Copaifera officinalis*. *Plant Physiol. Biochem.* In press
- Zhao, N., Boyle, B., Duval, I., Ferrer, J., Lin, H., Seguin, A., Mackay, J. and Chen, F. (2009). SABATH methyltransferases from white spruce (*Picea glauca* [Moench] Voss): Gene cloning, functional characterization and structural analysis. *Tree Physiol.* 29: 947-957
- Navia-Gine, W., Gomez, S.K., Yuan, J.S., Chen, F. and Korth, K.L (2009). Insect-induced gene expression at the core of volatile terpene release in *Medicago truncatula*. *Plant Sign. Beha.* 4: 636-638

- Yuan, J.S., Himanen, S.J., Holopainen, J.K., Chen, F. and Stewart, C.N. (2009). Smelling global climate change: mitigation of function for plant volatile organic compounds. *Trends Ecol Evol.* 24: 323-331
- Navia-Gine W., Yuan J.S., Mauromoustakos, A., Murphy, J.B., Chen F. and Korth K.L. (2009) Regulation of an insect-induced E-(beta)-ocimene synthase and other terpene synthases of *Medicago truncatula*. *Plant Physiol. Biochem.* 47: 416-425
- Zhao, N., Guan, J., Forouhar, F., Tschaplinski, T.J., Cheng, C-M., Tong L., and Chen, F. (2009) Two poplar methyl salicylate esterases display comparable biochemical properties but divergent expression patterns. *Phytochemistry* 70: 37-44
- Yuan, J.S., Köllner, T.G., Wiggins, G., Grant, J., Zhao, N., Zhuang, X., Degenhardt, J., and Chen, F. (2008) Elucidation of the genomic basis of indirect plant defense against insects. *Plant Sign. Beha.* 3: 720-721
- Zhuang, X-F., Klingeman, W.E., Hu, J., and Chen, F. (2008) Emission of floral volatiles from Dogwood flowers. *J Agri Food Chem.* 56: 9570-9574
- Yuan, J.S., Köllner, T.G., Wiggins, G., Grant, J., Degenhardt, J., and Chen, F. (2008) Molecular and genomic basis of volatile-mediated indirect defense against insects in rice. *Plant J.* 55: 491-503
- Zhao, N., Ferrer, J-L., Ross, J., Guan, J., Yang, Y., Pichersky, E., Noel, J.P., and Chen, F. (2008) Structural, biochemical and phylogenetic analyses suggest that indole-3-acetic acid methyltransferase is an evolutionarily ancient member of the SABATH family. *Plant Physiol.* 146: 455-467
- Zhao, N., Guan, J., Lin, H., and Chen, F. (2007) Molecular cloning and biochemical characterization of indole-3-acetic acid methyl transferase from poplar. *Phytochemistry.* 68: 1537-1544
- Klingeman, W.E., Chen, F., Kim, H.J., and Flanagan, P.C. (2007) Feeding preference of dogwood sawfly larvae indicates resistance in *Cornus*. *J. Environ. Hort.* 25: 134-138
- Nonogaki, H., Chen, F. and Bradford, K.J. (2007). Mechanisms and genes involved in germination *sensu stricto*. in *Seed Development, Dormancy and Germination*, eds Bradford, K.J. & Nonogaki, H., Blackwell Publishing, Oxford, U.K., pp 264-304.
- Yuan, J.S., Yang, X.H., Lai, J.R., Lin, H., Cheng, Z.M., Nonogaki, H. and Chen, F. (2007) The Endo- β -Mannanase gene families in Arabidopsis, rice and poplar. *Func. Integr. Genomics.* 7: 1-16
- Tholl, D., Chen, F., Iijima, Y., Fridman, E., Gang, D.R., Lewinsohn, E., and Pichersky, E. (2007) Identifying substrates and products of enzymes of plant volatile biosynthesis with the help of metabolic profiling. In *Concepts in Plant Metabolomics*, eds Nikolau B.J. and Syrkin Wurtele E, Springer Netherlands, pp 169-182.
- Yuan, J.S., Reed, A., Chen, F. and Stewart, C.N. (2006) Statistical analysis of real-time PCR data. *BMC Bioinformatics* 7:85
- Chen, F., Cseke, L., Lin, H., Kirakosy, A., Yuan, J., and Kaufman, P. (2006) The study of plant natural product biosynthesis in the pre-genomics and genomics eras. In *Natural Products from Plants*, Second Edition, CRC Press. pp203-220.
- Yang, Y. Yuan, J.S., Ross, J., Noel, J.P., Pichersky, E. and Chen, F. (2006) An *Arabidopsis thaliana* methyltransferase capable of methylating farnesoic acid. *Arch. Biochem. Biophys.* 448: 123-132.

- Tholl, D., Chen, F., Petri, J., Gershenzon, J., and Pichersky, E. (2005) Two sesquiterpene synthases are responsible for the complex mixture of sesquiterpenes emitted from *Arabidopsis* flowers. *Plant J.* 42: 757-771
- Chen, F., Ro, D.-k., Petri, J., Gershenzon, J., Bohlmann, J., Pichersky, E., and Tholl E. (2004) Characterization of a root-specific *Arabidopsis* terpene synthase responsible for the formation of the volatile monoterpene 1,8-Cineole. *Plant Physiol.* 135: 1956-1966
- Pott, M.B., Hippauf, F., Saschenbrecker, S., Chen, F., Kiefer, I., Slusarenko, A., Ross, J., Noel, J.P., Pichersky, E., Effmert, U., and Piechulla, B. (2004) Biochemical and structural characterization of benzenoid carboxyl methyltransferases involved in floral scent production in *Stephanotis floribunda* and *Nicotiana suaveolens*. *Plant Physiol.* 135:1946-1955
- Tholl, D., Chen, F., Gershenzon, J., and Pichersky, E. (2004) *Arabidopsis thaliana*, a model system for volatile terpene biosynthesis, regulation and function. In *Recent Advances in Phytochemistry*, Oxford: Elsevier Science Ltd. Vol. 38: 1-18
- Chen, F., D'Auria, J.C., Tholl, D., Ross, J.R., Gershenzon, J., Noel, J.P., and Pichersky, E. (2003) An *Arabidopsis* gene for methylsalicylate biosynthesis, identified by a biochemical genomics approach, has a role in defense. *Plant J.* 36: 577-588
- D'Auria, J.C., Chen, F., and Pichersky, E. (2003) The SABATH family of methyltransferases in *Arabidopsis thaliana* and other plant species. In *Recent Advances in Phytochemistry*, Oxford: Elsevier Science Ltd. Vol. 37: pp 253-283
- Chen, F., Tholl D., D'Auria, J.C., Farooq, A., Pichersky, E., and Gershenzon, J. (2003) Biosynthesis and emission of terpenoid volatiles from *Arabidopsis* flowers. *Plant Cell* 15: 481-494
- Harding, S., Tsai C.J., Cseke, L., Kaufman, P., Chang, S.C., and Chen, F. (2003) Localization of gene expression. In *Handbook of molecular and cellular methods in biology and medicines*. CRC Press. pp 483-504
- D'Auria, J.C., Chen, F., and Pichersky, E. (2002) Characterization of an acyltransferase capable of synthesizing benzylbenzoate and other volatile esters in flowers and damaged leaves of *Clarkia breweri*. *Plant Physiol.* 130: 466-476
- Gang, D.R., Lavid, N., Zubieta, C., Chen, F., Beuerle, T., Lewinsohn, E., Noel, J.P., and Pichersky, E. (2002) Characterization of phenylpropene *O*-methyltransferases from sweet basil: facile change of substrate specificity and convergent evolution within a plant *O*-methyltransferase family. *Plant Cell* 14: 505-519
- Chen, F., Nonogaki, H., and Bradford, K.J. (2002) A gibberellin-regulated xyloglucan endotransglycosylase gene is expressed in the endosperm cap during tomato seed germination. *J. Exp. Bot.* 53: 215-223
- Chen, F., Dahal, P., and Bradford, K.J. (2001) Two tomato expansin genes show divergent expression and localization in embryos during seed development and germination. *Plant Physiol.* 127: 928-936
- Chen, F., and Bradford, K.J. (2000) Expression of an expansin gene is associated with endosperm cap weakening during tomato seed germination. *Plant Physiol.* 124: 1265-1274
- Bradford, K.J., Chen, F., Cooley, M.B., Dahal, P., Downie, B., Fukunaga, K.K., Gee, O.H., Gurusinge, S., Mella, R.A., Nonogaki, H., Wu, C-T., Yang, H., and Yim, K-O. (2000) Gene expression prior to radicle emergence in imbibed tomato seeds. *In M*

Black, KJ Bradford and J Vazquez-Ramos, eds, *Advances and Applications in Seed Biology*. CABI, Wallingford, U.K., pp. 231-251

Chen, F., and Zhu, Zh. (1998) A highly effective eukaryotic expression system of potential use in genetic engineering. *Progress Biotech.* 118: 31-35 (in Chinese)

Invited Seminars and Conference Talks

Integrative Genomics of Plant Secondary Metabolism, June 4, 2009, Dalian Institute of Chemical Physics, The Chinese Academy of Sciences, Dalian, China

Investigating Plant Natural Product Biosynthesis Using Integrative Functional Genomics. May 27, 2009, Qingdao Institute of Oceanology, The Chinese Academy of Sciences, Qingdao, China

Integrative Genomics of Plant Secondary Metabolism. May 25, 2009, Institute of Botany, The Chinese Academy of Sciences, Beijing, China

Integrative Genomics of Plant Metabolism and Plant Protection, May 20, 2009, College of Life Sciences, Nankai University, Tianjin, China

Integrative Genomics of Plant Metabolism. January 29, 2009, Computational Systems Biology Lab, Department of Biochemistry and Molecular Biology, University of Georgia

Investigating the Genomic Basis and Evolution of Volatiles-mediated Indirect Plant Defense against Insects. January 10, 2009, Plant and Animal Genome XVII Conference, San Diego, California

Molecular and Genomic Basis of Insect-induced Plant Volatiles Mediating Tritrophic Interactions. August 29, 2008, Department of Ecology and Evolutionary Biology, University of Tennessee

Comparative Genomic, Structural and Biochemical Study of Substrate Specificity Evolution of the SABATH Family of Methyltransferases. June 30, 2008. Phytochemical Society of North American Annual Meeting. Pullman, Washington.

Metabolic, Genomic, and Biochemical Analyses Identify Novel Genes Involved in Attracting Natural Enemies of Rice Herbivores. September 26, 2007. Department of Biological Sciences, East Tennessee State University

Metabolic, Genomic, and Biochemical Analyses Identify Novel Genes Involved in Attracting Natural Enemies of Rice Herbivores. October 10, 2007. Department of Biochemical, Cellular and Molecular Biology, University of Tennessee

An Integrated Study of Indirect Defense against Insects in Rice—From Ecology to Metabolomics to Transcriptomics to Responsible Genes. March, 18, 2007. Plant Genomes. Cold Spring Harbor

Investigating Plant Natural Products Biosynthesis Using Integrated Functional Genomics. June 15, 2006. Bioactive Natural Products Group, University of Tennessee

Functional Genomic Study of Plant Chemical Defenses. April 21, 2006, Department of Entomology and Plant Pathology, University of Tennessee

Investigating Volatile Biosynthesis in Arabidopsis Using Integrated Genomics. September 21, 2005, Department of Horticulture, University of Kentucky

Metabolomics, Genomics and Biochemistry of Volatile Biosynthesis in Arabidopsis. August 4, 2005, Department of Plant Sciences, University of California, Davis

Biosynthesis, Regulation and Function of Volatile Secondary Metabolites in Arabidopsis.
March 9, 2005, Department of Plant Pathology and Crop Physiology, Louisiana State
University

Investigating Plant Natural Product Biosynthesis Using Functional Genomics. March 18,
2004, Department of Plant Sciences, University of Tennessee