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Education

Ph.D. 2003. Floriculture & Ornamental Horticulture/ Plant Molecular Biology/Plant Breeding. Cornell University, Ithaca, NY
M.S. 1989. Ornamental Botany. Huazhong Agricultural University, China
B.S. 1986. Forest Science. Huazhong Agricultural University, China

Research Interest

- Synthetic biology or Biology by design
- Genomics of CAM (Crassulacean Acid Metabolism) plants
- Application of evolutionary genomics to bioenergy and ecological research
- Discovery of small signaling proteins
- Genome/transcriptome sequencing using new sequencing technology
- Genetic improvement in water use efficiency and drought tolerance in bioenergy crops
- Reducing recalcitrance of biomass for biofuel production

Professional Experiences

2012 - present	Joint faculty, Department of Biochemistry & Cellular and Molecular Biology, University of Tennessee, Knoxville
8/2008 - present	Staff Scientist, Biosciences Division, Oak Ridge National Laboratory.
8/2006 - 8/2008	Postdoctoral Research Scientist, Oak Ridge National Laboratory.
3/2006 - 8/2006	Research Associate II, Department of Plant Sciences, University of Tennessee.
5/2005 - 3/2006	Postdoctoral Research Associate, Department of Plant Sciences, University of Tennessee.
11/2002 - 5/2005	Postdoctoral Fellow, Department of Horticulture, Cornell University.
8/1997 - 8/2002	Graduate Research Assistant, Department of Horticulture, Cornell University.
6/1989 - 7/1997	Research Assistant and Assistant Research Scientist, Department of Ornamental Horticulture, Institute of Vegetables and Flowers, Chinese Academy of Agricultural Sciences, Beijing, China.

Honors and Awards

- 2008 Distinguished Achievement Award for Post-Graduate Research in Environmental Science (In recognition of outstanding early career productivity, ability to collaborate effectively in a team setting, and ability to integrate bioinformatics and molecular biology to gain novel insights into evolutionary genomics).
- 2000 Liu Memorial Award in recognition of his excellent progress and high potential for a successful academic career.
- 1995 Israeli Foreign Ministry Fellowship for training at the Volcani Center.

Other Professional Activities

Reviewer for USDA National Research Initiative Competitive Grants Program

Reviewer for Journal of Experimental Botany, Physiologia Plantarum, International Journal of Plant Genomics, Journal of Plant Biotechnology, Plant Methods, Environmental Management, BMC Biotechnology, Journal of Proteomic Research, Plos Computational Biology, Planta

Organizer of the international symposium entitled “Systems Biology and Ecology of CAM Plants” to be held in Granlibakken Resort and Conference Center, Tahoe City, CA; July 15-17, 2014.

Teaching experience

Yang, X. Phylogenetics: Concepts and Applications, guest lectures for Advanced Experimental Techniques I (BCMB515), Dept. of Biochemistry & Cellular & Molecular Biology, University of Tennessee.

Yang, X. Homolog identification in *Populus*; phylogenetics, ortholog and primer design. BEESC *Populus* workshop. Hosted by Gunter, L., **Yang, X.**, Kalluri, U.C., and Tuskan, G.A., Feb 20, 2008. Townsend, TN.

Cheng, Z.-M. and **Yang, X.** Advanced Plant Genomics, Dept. of Plant Sciences, University of Tennessee. 2006 Spring semester.

Invention Disclosure

Nine Invention Disclosures for genes impacting cell wall biosynthesis and biomass recalcitrance in *Populus* (ORNL Invention Disclosure #: 201102698, 201102699, 20110270, 20110271, 20110272, 20110273, 20110275, 20110276, 2011027).

Publications

- Ye C-Y, Li T, Yin H, Weston DJ, Tuskan GA, Tschaplinski TJ, **Yang X.** 2012. Evolutionary analyses of non-family genes in plants. *Plant Journal* (Early View at <http://onlinelibrarywiley.com/doi/10.1111/tpj.12073/abstract>).
- Karve AA, Jawdy SS, Gunter LE, Allen SM, **Yang X,** Tuskan GA, Wullschlegel SD, Weston DJ. 2012. Initial characterization of shade avoidance response suggests functional diversity between *Populus* phytochrome B genes. *New Phytol* **196**(3): 726-737.

- Bennetzen JL, Schmutz J, Wang H, Percifield R, Hawkins J, Pontaroli AC, Estep M, Feng L, Vaughn JN, Grimwood J, Jenkins J, Barry K, Lindquist E, Hellsten U, Deshpande S, Wang X, Wu X, Mitros T, Triplett J, **Yang X**, Ye CY, Mauro-Herrera M, Wang L, Li P, Sharma M, Sharma R, Ronald PC, Panaud O, Kellogg EA, Brutnell TP, Doust AN, Tuskan GA, Rokhsar D, Devos KM. 2012. Reference genome sequence of the model plant *Setaria*. *Nat Biotechnol* 30(6): 555-561.
- Yang X**, Tschaplinski TJ, Hurst GB, Jawdy S, Abraham PE, Lankford PK, Adams RM, Shah MB, Hettich RL, Lindquist E, Kalluri UC, Gunter LE, Pennacchio C, Tuskan GA. 2011. Discovery and annotation of small proteins using genomics, proteomics, and computational approaches. *Genome Research* 21(4): 634-641.
- Yang X**, Ye C-Y, Bisaria A, Tuskan GA, Kalluri UC. 2011. Identification of candidate genes in *Populus* cell wall biosynthesis using text-mining, co-expression network and comparative genomics. *Plant Science* 181: 675– 687.
- Yang X**, Ye C-Y, Cheng Z-M, Tschaplinski TJ, Wullschleger SD, Yin W, Xia X, Tuskan GA. 2011. Genomic aspects of research involving polyploid plants. *Plant Cell, Tissue and Organ Culture* 104: 387–397.
- Ye C-Y, Li T, Tuskan GA, Tschaplinski TJ, **Yang X**. 2011. Comparative analysis of GT14/GT14-like gene family in *Arabidopsis*, *Oryza*, *Populus*, *Sorghum* and *Vitis*. *Plant Science* 181: 688– 695.
- Weston DJ, Karve AA, Gunter LE, Jawdy SS, **Yang X**, Allen SM, Wullschleger SD. 2011. Comparative physiology and transcriptional networks underlying the heat shock response in *Populus trichocarpa*, *Arabidopsis thaliana* and *Glycine max*. *Plant Cell Environ* 34(9): 1488-1506.
- Cai B, **Yang X**, Tuskan GA, Cheng ZM. 2011. MicroSyn: a user friendly tool for detection of microsynteny in a gene family. *BMC Bioinformatics* 12: 79.
- Guo J, **Yang X**, Weston DJ, Chen JG. 2011. Abscisic Acid receptors: past, present and future. *J Integr Plant Biol* 53(6): 469-479.
- Guo J, Jin Z, **Yang X**, Li JF, Chen JG. 2011. Eukaryotic initiation factor 6, an evolutionarily conserved regulator of ribosome biogenesis and protein translation. *Plant Signal Behav* 6(5): 766-771.
- Yang X**, Li T, Weston D, Karve A, Labbe JL, Gunter LE, Sukumar P, Borland A, Chen J-G, Wullschleger SD, Tschaplinski TJ, Tuskan GA. 2011. Innovative biological solutions to challenges in sustainable biofuels production. In *Biofuel Production-Recent Developments and Prospects*, (ed. MADS Bernardes), pp. 375-414. Intech, Rijeka.
- DiFazio SP, **Yang X**, Tuskan GA. 2011. The *Populus* Genome Sequence. In *Genetics, Genomics and Breeding of Poplar*, (ed. CP Joshi, SP DiFazio, C Kole). Science Publishers, Enfield, New Hampshire.
- Tyler L, Bragg JN, Wu J, **Yang X**, Tuskan GA, Vogel JP. 2010. Annotation and comparative analysis of the glycoside hydrolase genes in *Brachypodium distachyon*. *BMC Genomics* 11: 600.
- Vogel JP, Garvin DF, Mockler TC, Schmutz J, Rokhsar D, Bevan MW, Barry K, Lucas S, Harmon-Smith M, Lail K, ..., **Yang X**, Kalluri UC, Tuskan GA et al. 2010. Genome sequencing and analysis of the model grass *Brachypodium distachyon*. *Nature* 463(7282): 763-768.

- Ranjan P, Yin T, Zhang X, Kalluri U, **Yang X**, Jawdy S, Tuskan G. 2009. Bioinformatics-based identification of candidate genes from QTLs associated with cell wall traits in *Populus*. *BioEnergy Research* DOI 10.1007/s12155-009-9060-z: 1-11.
- Xu Z, Zhang D, Hu J, Zhou X, Ye X, Reichel KL, Stewart NR, Syrenne RD, **Yang X**, Gao P, Shi W, Doepcke C, Sykes RW, Burris JN, Bozell JJ, Cheng MZ, Hayes DG, Labbe N, Davis M, Stewart CN, Jr., Yuan JS. 2009. Comparative genome analysis of lignin biosynthesis gene families across the plant kingdom. *BMC Bioinformatics* 10 Suppl 11: S3.
- Yang X**, Kalluri UC, DiFazio SP, Wullschleger SD, Tschaplinski TJ, Cheng ZM, Tuskan GA. 2009. Poplar genomics: State of the science. *Crit Rev Plant Sci* 28(5): 285-308.
- Yang X**, Jawdy S, Tschaplinski TJ, Tuskan GA. 2009. Genome-wide identification of lineage-specific genes in *Arabidopsis*, *Oryza* and *Populus*. *Genomics* 93(5): 473-480.
- Osburn LD, Yang X, Li Y, Cheng ZM. 2009. Micropropagation of Japanese honeysuckle (*Lonicera japonica*) and Amur honeysuckle (*L. maackii*) by shoot tip culture. *J Environ Hort* 27(4): 195-199.
- Yang X**, Kalluri UC, Jawdy S, Gunter LE, Yin TM, Tschaplinski TJ, Weston DJ, Ranjan P, Tuskan GA. 2008. The F-box gene family is expanded in herbaceous annual plants relative to woody perennial plants. *Plant Physiology* 148(3): 1189-1200.
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- Yang, X.**, Tuskan, G.A., and Cheng, Z.-M. (2006). Divergence of the Dof gene families in poplar, Arabidopsis, and rice suggests multiple modes of gene evolution after duplication. *Plant Physiol* 142: 820-830.
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- Yang, X.**, Jin, B., Zhang, Y., Mu, D., and Tang, X. (1995) Enhancement of direct shoot regeneration from internode segments of chrysanthemum by silver nitrate. *Acta Horticulturae* 404: 68-73
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