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Education

M.S.	1993	Botany	University of Georgia
B.S.	1988	Botany	University of Florida

Research Interests/Current Activities

Genetics of *Populus*, ecosystem genomics, systematics, and the application of genetic markers and genes to biological questions. Current research focuses on annotation of the poplar genome, mapping of genes involved in carbon sequestration processes in poplar, and comparative genomics between poplar, *Arabidopsis* and rice.

Research Experience

2003-present	Technical Staff, Plant Molecular Biology Group, Environmental Sciences Division, Oak Ridge National Laboratory, Oak Ridge, TN
2001-2003	Research and Development Associate, Genomics, Environmental Sciences Division, Oak Ridge National Laboratory, Oak Ridge, TN
1998-2001	Research and Development Assistant, Genomics, Environmental Sciences Division, Oak Ridge National Laboratory, Oak Ridge, TN
1994-1998	Post-Master's Research Assistant, Environmental Sciences Division, Oak Ridge National Laboratory. U.S. Department of Energy Laboratory Cooperative Postgraduate Research Training Program, Oak Ridge, TN
1988-1990	Research Assistant, Department of Molecular Biology, Vanderbilt University, Nashville, TN
1986-1988	Laboratory Assistant, Entomology Unit, U.S. Department of Agriculture/Agricultural Research Service, Gainesville, FL

Publications

- Yin, T.-M., S.P. DiFazio, X. Zhang, L.E. **Gunter**, M.M. Sewell, S. Woolbright, G..J. Allan, C.T. Kelleher, C.J. Douglas, M. Wang, G.A. Tuskan. Genome structure and chromosomal diversification revealed through consensus genetic map in *Populus* (in prep).
- L.E. **Gunter**, J.M. Adams, R.J. Norby and S.P DiFazio. Genomic Characterization of Belowground Ecosystem Responses to Climate Change (in prep).
- DiFazio, S.P., Brunner. A, Dharmavardhana. P, Kalluri. U.C., **Gunter**. L, Tuskan. G.A. Development of a *Populus* whole-genome oligoarray and assessment of applicability of cottonwood microarrays in studying aspen transcriptome. (in prep).
- Sewell, M.M., L.E. **Gunter**, T.J. Tschaplinski, and G.A. Tuskan. 2006. Identification of QTLs associated with biomass production in hybrid poplar. I. Heterosis and the stability of QTLs across contrasting environments. TREE GENETICS AND GENOME (in review).
- Sewell, M.M., L.E. **Gunter**, T.J. Tschaplinski, T.M. Yin, S. DiFazio and G.A. Tuskan. 2006. Identification of QTLs associated with biomass production in hybrid poplar. II. Relationship among QTLs for crown architecture and stem growth. TREE GENETICS AND GENOMES (in review).
- Lin, Juan, L.E. **Gunter**, S. Harding, R.F. Kopp, R.P. McCord, C.-J. Tsai, G.A. Tuskan and L.B. Smart. Development of AFLP and RAPD markers linked to a locus associated with twisted growth in corkscrew willow (*Salix matsudana* ‘Tortuosa’) TREE PHYSIOLOGY (in revision).
- Tuskan, GA, DiFazio, S. Jansson et al. The genome of black cottonwood, *Populus trichocarpa* (Torr. & Gray). SCIENCE, 313 (5793): 1596-1604 SEP 15 2006.
- Wullschleger, S.D., Yin, T.M., DiFazio, S.P., Tschaplinski, T.J., **Gunter**, L.E., Davis, M.F. and Tuskan, G.A. 2005. Phenotypic variation in growth and biomass distribution for two advanced- generation pedigrees of hybrid poplar (*Populus* spp.) CANADIAN JOURNAL OF FOREST RESEARCH-REVUE CANADIENNE DE RECHERCHE FORESTIERE 35 (8): 1779-1789.
- Yin, T.M., DiFazio, S.P., **Gunter**, L.E., Jawdy, S.S., Boerjan, W. and Tuskan, G.A. 2004 Genetic and physical mapping of *Melampsora* rust resistance genes in *Populus* and characterization of linkage disequilibrium and flanking genomic sequence. NEW PHYTOLOGIST 164(1):95-105.
- Yin, T.M.; DiFazio, S.P.; **Gunter**, L.E.; Riemenschneider, D., and Tuskan, G.A. 2004. Large-scale heterospecific segregation distortion in *Populus* revealed by a dense genetic map. THEORETICAL AND APPLIED GENETICS 109 (3): 451-463.
- Tuskan, G.A., **Gunter**, L.E., Yang, Z.K., Yin, T.M., Sewell, M.M., DiFazio, S.P. 2004. Characterization of microsatellites revealed by genomic sequencing of *Populus trichocarpa*. CANADIAN JOURNAL OF FOREST RESEARCH-REVUE CANADIENNE DE RECHERCHE FORESTIERE 34 (1): 85-93.
- Stirling, B.; Yang, Z.K., **Gunter**, L.E., Tuskan, G.A., Bradshaw, H.D. Jr. 2003. Comparative sequence analysis between orthologous regions of the *Arabidopsis* and *Populus* genomes reveals substantial synteny and microcollinearity. CANADIAN JOURNAL OF FOREST RESEARCH-

- Gunter**, LE; Black, AS; Ratnayeke, S; Tuskan, GA; Wullschleger, SD. 2003. Assessment of genetic similarity among 'Alamo' switchgrass seed lots using RAPD markers. SEED SCIENCE AND TECHNOLOGY 31 (3): 681-689.
- Gunter**, L.E., R.F. Kopp, R.P. McCord, and G.A. Tuskan. 2003. Analysis of sex-linked, sequence-characterized amplified region markers in *Salix eriocephala* CANADIAN JOURNAL OF FOREST RESEARCH-REVUE CANADIENNE DE RECHERCHE FORESTIERE 33 (9):1785-1790.
- Gunter**, L.E., G.T. Roberts, K. Lee, F.W. Larimer, and G.A. Tuskan. 2003. SCAR Markers linked to sex determination in basket willow (*Salix viminalis* L.). JOURNAL OF HEREDITY 94(2): 185-189.
- Gunter**, L.E., Zamin K. Yang, G.A. Tuskan, and S.D. Wullschleger. 2002. Towards the Development of a Molecular Map in Switchgrass: I. Microsatellite Marker Development. Annual Progress Report. October 1, 2000 - September 30, 2001. ORNL/TM-2002/98.
- Gunter**, L.E. 2000. Molecular Mechanisms of Reproduction and Wood Formation in Willow. Annual Progress Report. October 1, 1999 - September 30, 2000.
- Gunter**, L.E., R.J. Norby, C.A. Gunderson and G.A. Tuskan. 2000. Genetic variation and spatial structure in sugar maple (*Acer saccharum* Marsh.) and implications for predicted global-scale environmental change. GLOBAL CHANGE BIOLOGY 6 (3): 335-344.
- Wullschleger, S.D., L.E. **Gunter** and JR.C.T. Garten 2000. Improving the Productivity of the Bioenergy Crop Switchgrass (*Panicum virgatum*). Annual Progress Report. October 1, 1998 - September 30, 1999.
- Gunter**, L.E. 1999. Molecular Mechanisms of Reproduction and Wood Formation in Willow. Annual Progress Report. October 1, 1998 - September 30, 1999.
- Wullschleger, S.D., L.E. **Gunter**, C.T. Garten, E.G. O'Neill. 1999. Genetic Diversity, Carbon/Nitrogen Cycling, and Long-Term Sustainability of Yield in the Bioenergy Crop Switchgrass (*Panicum virgatum*), ORNL/TM-6724.
- Stevens, M.T., M.G. Turner, G.A. Tuskan, W.H. Romme, L.E. **Gunter**, and D.M. Waller. 1999. Genetic variation in postfire aspen seedlings in Yellowstone National Park. MOLECULAR ECOLOGY 8:1769-1780.
- Wullschleger, S.D., L.E. **Gunter** and C.T. Garten 1998. Genetic Diversity, Carbon/Nitrogen Cycling, and Long-Term Sustainability of Yield in the Bioenergy Crops Switchgrass (*Panicum virgatum*). ORNL/TM-6516.
- Tuskan, G.A., L.E. **Gunter**, T.J. Tschaplinski, F.W. Larimer. 1997. The Isolation of DNA Sequences Determining Gender in the Plant Family Salicaceae. ORNL/TM-6364.
- Gunter**, Lee, Jerry Tuskan, and Stan Wullschleger. 1996. Switchgrass molecular markers research. ENERGY CROPS FORUM. Summer 1996.
- Gunter**, L.E., G.A. Tuskan, and S.D. Wullschleger. 1996. Genetic diversity of switchgrass cultivars

revealed by randomly amplified polymorphic DNA (RAPD) markers. CROP SCIENCE 36:1017-1022.

Wullschleger, S.D., L.E. **Gunter** and G.A. Tuskan 1994. Research on Improving the Productivity of Switchgrass (*Panicum virgatum*) as a Biofuels Crop - Assessing Genotypic Diversity with Physiological and Molecular Indicators. ORNL/TM-5011 .

Gunter, L.E., G. Kochert, and D.E. Giannasi. 1994. Phylogenetic relationships of the Juglandaceae. PLANT SYSTEMATICS AND EVOLUTION 192:11-29.

Feng, Y., L.E. **Gunter**, E.L. Organ, and D.R. Cavener. 1991. Translation initiation in *Drosophila melanogaster* is reduced upstream of the AUG initiator codon. MOLECULAR AND CELLULAR BIOLOGY 11(4):2149-2153.

Presentations and Proceedings

Islam-Faridi, N., M.A. Majid , L. **Gunter**, S. DiFazio, C.D. Nelson , G.A. Tuskan. Chromosome Assignment Of The rDNA Genes in Poplar Using Fluorescence in situ Hybridization. Plant & Animal Genomes XV Conference, January 13-17, 2007, Town & Country Convention Center, San Diego, CA (Available Jan 14, 2007 at http://www.intl-pag.org/15/abstracts/PAG15_W20_130.html).

Yin, T.M., DiFazio, S.P., **Gunter**, L.E., Sewell, M.M., Jawdy, S.S., Wullschleger, S.D., Tschaplinski, T.J. and Tuskan, G.A. An integrated platform for comparative mapping and genome assembly in poplars: the perennial plant model system. 12th New Phytologist Symposium: Functional genomics of environmental adaptation in *Populus*, October 10-13, 2004, Gatlinburg, Tennessee, USA.

Tuskan, G.A., S.D Wullschleger, S.P. DiFazio, L.E. **Gunter**, M.E. Schuster, M.L. Land, F.W. Larimer, K. Ritland, J.L. Boore, and D.S. Rokhsar. The *Populus* chloroplast genome: a comparison of genome structure and organization. Plant & Animal Genome XI Conference Workshop: Forest Trees. January 11-15, 2003, Town & Country Convention Center, San Diego, CA.

Juan Lin, Lee E. **Gunter**, Richard F. Kopp, Gerald A. Tuskan, and Lawrence B. Smart. Identification of Molecular Markers Linked to the *tortuosa* Gene in Corkscrew Willow. Plant Biology Meeting. American Society of Plant Biologist's Annual Meeting. August 3-7, 2002, Denver, CO.

Juan Lin, Lee E. **Gunter**, Richard F. Kopp, Gerald A. Tuskan, and Lawrence B. Smart. Identification of Molecular Markers Linked to the *tortuosa* Gene in Corkscrew Willow. Spring 2002 Meeting of the Northeastern Section of the American Society of Plant Biology. May 3-4, 2002 Wellesley College Science Center, Wellesley, MA

Nghiem, N. P., Davison B. H., Tuskan G. A., **Gunter** L. E., Cheng C. L., and Drescher S. R. The effect of lignin contents and S/G ratio in *Populus* on the release of fermentable sugars during dilute acid hydrolysis. 24th Symposium on Biotechnology for Fuels and Chemicals, April 28 - May 1, 2002, Gatlinburg, TN.

Gunter, L.E. Microsatellite Marker Development in Switchgrass. DOE/ORNL/Bioenergy Feedstock Development Program Herbaceous Energy Crop and Short Rotation Woody Crop Subcontractor's Workshop. Memphis, TN, November 6-9, 2001.

- Gunter**, L.E., G.A. Tuskan and R.F. Kopp. Interspecific Testing of Gender-Associated Scar Markers in *Salix*. *International Plant and Animal Genome IX Conference*. San Diego, CA USA, Town & Country Hotel, January 13-17, 2001.
- Gunter**, L.E. Microsatellite Marker Development in Switchgrass. *DOE/ORNL/Bioenergy Feedstock Development Program Herbaceous Research Contractor's Workshop*. Atlanta, GA, December 12-13, 2000.
- Gunter**, L.E., G.A. Tuskan, and S.D. Wullschleger. Assessment of genetic variation at the DNA level among 'Alamo' seed sources. 1999. *Crop Science Society of America 1999 Annual Meeting Abstracts*. Salt Lake City, UT, October 31-November 4, 1999. p. 155.
- Gunter**, L.E., A.S. Black, S. Ratnayake, G.A. Tuskan and S.D. Wullschleger. Assessment of genetic variation among 'Alamo' switchgrass seed sources using RAPD markers-an update. *DOE/ORNL/Bioenergy Feedstock Development Program Research Contractor's Workshop*. Alexandria, MN, October 12-15, 1999.
- Gunter**, L.E. Marker based analysis of plant populations: Applications to biomass feedstock. *ESD Advisory Committee*. Oak Ridge, TN, June 14-17, 1999.
- Gunter**, L.E., G.A. Tuskan and S.D. Wullschleger. Assessment of genetic variation at the DNA level among 'Alamo' seed sources. *Office of Fuels Development Meeting*. Oak Ridge, TN, December 8-9, 1998.
- Gunter**, L.E., G.A. Tuskan and S.D. Wullschleger. Assessment of genetic variation at the DNA level among 'Alamo' seed sources. *DOE/ORNL/Bioenergy Feedstock Development Program Herbaceous Research Contractor's Workshop*. Atlanta, GA, August 31, 1998.
- Gunter**, L.E., G.T. Roberts, K.-L. Lee, and G.A. Tuskan. RAPD and SCAR markers linked to femaleness in *Salix viminalis* L. *Frontiers of Forest Biology: 1998 Joint Meeting of the North American Biology Workshop (NAFB) and Western Forest Genetics Association (WFGA) Program and Abstracts*. University of Victoria, Victoria, British Columbia, June 21-26, 1998. Abstract ID: 51.
- Gunter**, L.E., G.T. Roberts, K.-L. Lee, F.W. Larimer and G.A. Tuskan. RAPD and SCAR markers linked to femaleness in *Salix viminalis* L. *Plant and Animal Genome VI: Program and Abstracts*. San Diego, CA, January 18-22, 1998. p. 170.
- Gunter**, L.E., S.D. Wullschleger, G.A. Tuskan, C.M Taliaferro and A.A. Hopkins. Characterization of switchgrass accessions using RAPD markers and morphological descriptor data. 1996. *Crop Science Society of America 1996 Annual Meeting Abstracts*. Indianapolis, IN, November 3-8, 1996. p. 176.
- Gunter**, L.E., R.J. Norby and G.A. Tuskan. Temperature adjustments in sugar maple: Genetic characterization of populations from 3 geographic seed sources. 1996. *Bulletin of the Ecological Society of America 1996 Annual Meeting Abstracts, Part 2*. Providence, RI, August 10-14, 1996. p. 175.
- Gunter**, L.E., G.A. Tuskan and S.D. Wullschleger. Quantification of genetic variability in switchgrass populations using RAPD markers. 1995. *Crop Science Society of America 1995 Annual Meeting Abstracts*. St. Louis, MO, October 29-November 3, 1995. p. 183.

Gunter, L.E., G. Kochert, and D.E. Giannasi. 1994. Phylogenetic Relationships of the Walnut Family. *Forest biodiversity in a changing environment: North American Forest Biology Workshop Abstracts*. Louisiana State University, Baton Rouge, LA, June 14-16, 1994. p. 34.

Other Professional Activities

2007 Reviewer, *Canadian Journal of Botany*

2006 Reviewer, NSF Plant Genome Research Program
Reviewer, *Euphytica*