**Lee E. Gunter**  Biosciences Division, Oak Ridge National Laboratory

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**Interests**

I have a broad interest and history in supporting R&D operationally through planning, review and oversight of lab and field activities and directorate operations that affect research efforts. I am dedicated to managing for productivity and efficiency without compromising safety. I seek to be involved in the review of procedures for efficiency and compliance with the goal of enhancing the smooth operation of R&D activities within the organization.

**Qualifications/Skills:**

15+ years as Principal Investigator on long-standing, broadly-encompassing and highly populated RSS-related activities for the Plant Systems Biology Group.

20 years as LSM in multiple labs; I am familiar with most operational activities and work control processes in BESD, and I am skilled at ensuring safety and compliance in pursuing research goals. I have provided training to hundreds of guests and am constantly assessing protocols and directions.

I have broad experience in lab and field-based activities.

I can relate to both the Operations Group and R&D staff and provide timely resolution to mission critical tasks on behalf of research needs without compromising safety or compliance.

Having served as TPO on multiple subcontracts I am familiar with the requirements and fulfilment of ES&H review and as LSM I am fully aware of the need to ensure environmental and safety compliance.

10+ years’ experience with USDA-APHIS permitting and reporting requirements.

Have completed the following CITI Program course:

Human Research (Curriculum Group)

Biomedical Investigators (Course Learner Group)

1 - Basic Course (Stage)

Experience with IRB and IBC processes.

**Professional Experience**

2008-present Technical Staff, Plant Systems Biology Group, Biosciences Division, Oak Ridge National Laboratory, Oak Ridge TN

* Conduct primary lab and greenhouse research, analyze data and contribute to reports and manuscripts leading to 30+ peer review publications
* Coordinate sample collection, inventory and processing for large field and greenhouse-based projects (100,000+ samples)
* Communicate with internal and external, national and international collaborators
* Manage labs and projects, provide interface for LIMS, train and mentor interns,
* Shipping, Material Transfer Agreements, Purchase Orders, USDA Permits,

2001-2007 Research Associate II, Plant Molecular Ecology, Environmental Sciences Division, Oak Ridge National Laboratory, Oak Ridge TN

1998-2001 Research Associate I, Plant Physiology & Biotechnology, Environmental Sciences Division, Oak Ridge National Laboratory, Oak Ridge TN

**Education**

University of Tennessee |MS in Information Sciences| 2007

University of Georgia |MS in Botany| 1993

University of Florida |BS in Botany| 1988

**Publications in Progress/ Review [ORCID:** [**https://orcid.org/0000-0003-1211-7532**](https://orcid.org/0000-0003-1211-7532)**,** [**Google Scholar Profile**](https://scholar.google.com/citations?user=KS7jzSMAAAAJ&hl=en) **]**

Overexpression of Prefoldin β subunit gene reduces biomass recalcitrance in the bioenergy crop Populus. Zhang J, Bryan AC, Rottmann W, Winkeler KA, Collins CM, Singan V, Lindquist EA, Jawdy SS, **Gunter LE**, Engle NL, Yang X, Barry K, Tschaplinski TJ, Schmutz J, Tuskan GA, Muchero W, Chen J-G (to be submitted to PLANT BIOTECHNOLGY J).

Overexpression of a serine hydroxymethyltransferase increases biomass production and reduces recalcitrance in the bioenergy crop *Populus*. **2018**. Zhang J, Li M, Bryan A, Yoo CG, Rottmann W, Winkeler K, Collins C, Singan V, Lindquist E, Jawdy S, **Gunter L**, Engle N, Yang X, Barry K, Tschaplinski T, Schmutz J, Pu Y, Ragauskas A, Tuskan G, Muchero W, Chen J-G. Submitted to GREEN CHEMISTRY 1 July 2018.

Molecular dissection of the secretory cells lining the specialized oil glands of Eucalyptus. **2018**. Mewalal R, Jones PC, Abraham PE, Annamraju A, Weighill D, **Gunter LE**, Engle NL, Pattathil S, Jacobson DA, Tschaplinski TJ, Peter GF, Tuskan GA. THE PLANT JOURNAL (in review).

Mediation of plant-mycorrhizal interaction by a lectin receptor-like kinase. **2018**. Labbé J, Muchero W, Czarnecki O, Wang J, Wang X, Bryan AC, Zheng K, Yang Y, Xie M, Zhang J, Wang D, Meidl P, Morrell-Falvey JL, Mewalal R, Jawdy SS, **Gunter LE**, Schackwitz W, Martin J, Le Tacon F, Li T, Zhang Z, Ranjan P, Lindquist E, Yang X, Jacobson DA, Tschaplinski TJ, Barry K, Schmutz J, Chen J-G, Tuskan GA. NATURE PLANTS (in review)

 **(FY19)**

The Nature of the progression of Drought Stress Drives Differential Metabolomic Responses in *Populus deltoides*. **2018**. Tschaplinski TJ, Jawdy SS, **Gunter LE**, Martin MZ, Engle NL, Yang X, Tuskan GA (tentative accepted in ANNALS BOTANY).

Phytobiome and transcriptional adaptation of Populus deltoides to acute progressive drought and cyclic drought. Garcia BJ, Labbé JL, Jones PC, Abraham PE, Jawdy SS, **Gunter LE**, Tuskan GA, Yang X, Tschaplinski TJ, Jacobson DA. PHYTOBIOMES (<https://apsjournals.apsnet.org/doi/pdf/10.1094/PBIOMES-04-18-0021-R>)

A new calmodulin-binding protein expresses in the context of secondary cell wall biosynthesis and impacts biomass properties in *Populus*. **2018**. Kalluri UC, Payyavula R, Yee K, Rodriguez M, Jawdy SS, **Gunter LE**, Tuskan GA, Ragauskas A, Guo H-B, Yang X, Davis M, Decker S, Sykes RW, Rottmann WH, Winkeler KA, Bali G, Collins C, Badmi R. FRONTIERS PLANT SCIENCE <https://www.frontiersin.org/articles/10.3389/fpls.2018.01669>

**(FY18)**

Defining the genetic components of callus formation: A GWAS approach. **2018**. Tuskan GA, Mewalal R, **Gunter LE**, Palla KJ, Carter K, Jacobson DA, Jones PC, Garcia BJ, Weighill DA, Hyatt PJ, Yang Y, Zhang J, Reis N, Chen J-G, Muchero W. PLoS ONE. <https://doi.org/10.1371/journal.pone.0202519>.

Genome-wide association studies and expression-based quantitative trait loci analyses reveal roles of HCT2 in caffeoylquinic acid biosynthesis and its regulation by defense-responsive transcription factors in *Populus*. 2018. Zhang J, Yang Y, Zheng K, Xie M, Feng K, Jawdy S, **Gunter** **L**, Ranjan P, Singan V, Engle N, Lindquist E, Barry K, Schmutz J, Zhao N, Tschaplinski T, LeBoldus J, Tuskan G, Chen J-G, Muchero W. **2018**. NEW PHYTOLOGIST <https://doi.org/10.1111/nph.15297>

A 5-enolpyruvylshikimate 3-phosphate synthase functions as a transcriptional repressor in Populus. **2018**. Xie M, Muchero W, Bryan AC, Xie M, Guo H-B, Yee K, Tschaplinski TJ, Singan VR, Lindquist E, Payyavula RS, Barros-Rios J, Dixon R, Engle NL, Sykes RW, Jawdy SS, **Gunter LE**, Thompson O, DiFazio SP, Evans LM, Winkler KA, Collins C, Schmutz J, Guo H, Kalluri UC, Rodriguez M, Feng K, Chen J-G, Tuskan GA. PLANT CELL. <https://doi.org/10.1105/tpc.18.00168>.

Quantitative proteome profile of water-deficit stress responses in *Populus deltoides* leaves. **2018**. Abraham PE, Garcia BJ, **Gunter LE**, Jawdy SS, Jacobson DA, Engle NL, Yang X, Hettich RL, Tuskan GA, Tschaplinski TJ. PloS ONE (in press). PLoS One. 2018 Feb 15;13(2):e0190019. <https://doi.org/10.1371/journal.pone.0190019>

Abiotic stresses shift below ground *Populus*-associated bacteria towards a core stress microbiome. **2018**. Timm C, Carter K, Carrell A, Jun S-R, Jawdy SS, Velez J, **Gunter LE**, Yang Z, Lu T-Y, Schadt C, Tschaplinski TJ, Doktycz M, Tuskan GA, Pelletier D, Weston DJ. ASM mSystems. 2018 Jan-Feb; 3(1): e00070-17. Published online 2018 Jan 23. <http://msystems.asm.org/content/3/1/e00070-17>.

Overexpression of a Domain of Unknown Function 231-containing protein increases O-xylan acetylation and cellulose biosynthesis in Populus. **2017**. Yang Y, Yoo CG, Winkeler KA, Collins CM, Hinchee MAW, Jawdy SS, **Gunter LE**, Engle NL, Pu Y, Yang X, Tschaplinski TJ, Ragauskas AJ, Tuskan GA, Chen J-G. Biotechnology for Biofuels 201710:311. <https://doi.org/10.1186/s13068-017-0998-3>

The *Physcomitrella patens* chromosome-scale assembly reveals moss genome structure and evolution. **2017**. Lang D, Ullrich K, Murat F, et al. THE PLANT JOURNAL <https://doi.org/10.1111/tpj.13801>

Agronomic Performance of *Populus deltoides* Trees Engineered for Biofuel Production. **2017**. Macaya-Sanz D, Chen J-G, Kalluri UC, Muchero W, Tschaplinski TJ, **Gunter LE**, Simon SJ, Biswal AK, Bryan AC, Payyavula R, Xie M, Yang Y, Zhang J, Mohnen D, Tuskan GA, DiFazio SP. BIOTECHNOLOGY FOR BIOFUELS 10:253. <https://doi.org/10.1186/s13068-017-0934-6>

Correlating Laser-Induced Breakdown Spectroscopy (LIBS) with Neutron Activation Analysis (NAA) to determine the elemental concentration in the ionome of the *Populus trichocarpa* leaf. **2017**. Martin MZ, Glasgow DC, Tschaplinski TJ, Tuskan GA, **Gunter LE**, Engle NL, Wymore AM, Weston DJ. SPECTRACHIMICA ACTA B. <https://doi.org/10.1016/j.sab.2017.10.008>.

**Other Publications within the last 5 years**

Overexpression of a Domain of Unknown Function 266-containing protein increases cellulose biosynthesis, reduces recalcitrance and enhances plant growth in the bioenergy crop *Populus*. **2017.** Yang Y, Yoo CG, Guo H-B, Rottmann WH, Winkeler KA, Collins CM, **Gunter LE**, Jawdy SS, Yang X, Guo H, Pu Y, Ragauskas AJ, Tuskan GA, Chen J-G. BIOTECHNOLOGY FOR BIOFUELS 10:74. <https://doi.org/10.1186/s13068-017-0760-x>.

Two poplar-associated bacterial isolates induce additive favorable responses in a constructed plant-microbiome system. 2016. Timm CM, Pelletier DA, Jawdy SS, **Gunter** LE, Henning JA, Engle N, Aufrecht J, Gee E, Nookaew I, Yang Z, Lu T, Tschaplinski TJ, Doktycz MJ, Tuskan GA and Weston DJ. **2016**. FRONTIERS IN PLANT SCIENCE 7:497. <https://doi.org/10.3389/fpls.2016.00497>.

Knockdown of a laccase in *Populus deltoides* confers altered cell wall chemistry and increased sugar release. Bryan AC, Jawdy S, **Gunter** L, Gjersing E, Sykes R, Hinchee MAW, Winkeler KA, Collins CM, Engle N, Tschaplinski TJ, Yang X, Tuskan GA, Muchero W and Chen J-G. **2016**. PLANT BIOTECHNOLOGY JOURNAL [https://doi:10.1111/pbi.12560](http://onlinelibrary.wiley.com/doi/10.1111/pbi.12560/full).

Scaling nitrogen and carbon interactions: what are the consequences of biological buffering? Weston DJ, Rogers A, Tschaplinski TJ, **Gunter** LE *et al*. **2015**. ECOLOGY AND EVOLUTION, 5(14):2839–2850. [https://doi:10.1002/ece3.1565](http://onlinelibrary.wiley.com/doi/10.1002/ece3.1565/full).

High-resolution genetic mapping of allelic variants associated with cell wall chemistry in *Populus*. **2015**. Muchero W, Guo J, DiFazio SP, Chen JG, Ranjan P, Slavov GT, **Gunter** LE, Jawdy SS, Bryan AC, Sykes R, Ziebell A, Kláp T J, Porth I, Skyba O, Unda F, El-Kassaby YA, Douglas CJ, Mansfield SD, Martin J, Schackwitz W, Evans LM, Czarnecki O, Tuskan GA. BMC GENOMICS 16(1):24. [https://doi:10.1186/s12864-015-1215-z](http://www.biomedcentral.com/1471-2164/16/24).

Population genomics of the model tree *Populus trichocarpa* identifies signatures of selection and adaptive trait associations. **2014**. Evans LM, Slavov GT, Rodgers-Melnick E, Martin J, Ranjan P, Muchero W, Brunner AM, Schackwitz W, **Gunter** LE, Chen JG Tuskan GA, DiFazio SP. NATURE GENETICS August 25, 2014. [https://doi: 10.1038/ng.3075](http://dx.doi.org/10.1038/ng.3075).

A multifactor analysis of fungal and bacterial community structure of the root microbiome of mature *Populus deltoides* trees. **2013**. Shakya M, Gottel N, Castro Gonzalez H, Yang Z, **Gunter** LE, Labbe JL, Muchero W, Bonito G, Vilgalys R, Tuskan GA, Podar M, Schadt CW. PLoS ONE 8 (10): e76382. [https://doi:10.1371/journal.pone.0076382](http://www.plosone.org/article/info%3Adoi/10.1371/journal.pone.0076382).

Martin MZ, **Gunter** LE, Jawdy SS, Wullschleger SD, Wheeler CS, Jha A. **2013**. Genetic improvement sustainable production and scalable small microenterprise of *Jatropha* as a biodiesel feedstock. BIOREMEDIATION & BIODEGRADATION S4:002. [https://doi: 10.4172/2155-6199.S4-00](http://dx.doi.org/10.4172/2155-6199.S4-00).

A 34K SNP genotyping array for Populus trichocarpa: design application to the study of natural populations and transferability to other *Populus* species. **2013**. Geraldes A, Hannemann J, Grassa C, Farzaneh N, Porth I, McKown A, Skyba O, Li E, Mike F, Friedmann M, Wasteneys G, Guy R, El-Kassaby Y, Mansfield S, Cronk Q, Ehlting J, Douglas C, DiFazio SP, Slavov G, Ranjan P, Muchero W, **Gunter** LE, Wymore A, Tuskan GA, Martin J, Schackwitz W, Pennacchio C, Rokhsar D. MOLECULAR ECOLOGY RESOURCES 13(2):306-323. [https://doi: 10.1111/1755-0998.12056](http://onlinelibrary.wiley.com/doi/10.1111/1755-0998.12056/abstract).

Genome anchored QTLs for biomass productivity in Hybrid *Populus*: Heterosis and detection across Contrasting Environments. **2013**. Muchero W, Sewell MM, **Gunter** LE, Tschaplinski TJ, Yin TM, DiFazio SP, Tuskan GA. PLoS ONE 8(1): e54468. [https://doi: 10.1371/journal.pone.0054468](http://www.plosone.org/article/info%3Adoi/10.1371/journal.pone.0054468).

**Recent Patents:**

Muchero W, Chen J, Gunter LE, Jawdy SS, Tuskan GA, Bryan AC, DiFazio SP, Guo H-B. Transcription factor which regulates flavonoid, phenylpropanoid, tyrosine, and tryptophan pathways. U.S. Patent No. 10,106,807. Issued October 23, 2018.

Chen, J, Gunter, Lee E, Jawdy, Sara, Muchero, Wellington, Tuskan, Gerald, Guo, Jianjun, Ranjan, Priya, DiFazio, Stephen P, Bryan, Anthony C. Key gene regulating plant cell wall recalcitrance. United States Patent 9,994,998. Issued June 12, 2018.

**Patent Applications:**

Chen J-G, Jawdy S, Yang X, Tuskan GA, Yang Y, **Gunter LE**. 2018. PtDUF266 Gene Regulating Cell Wall Biosynthesis and Recalcitrance in Populus. US Patent App. 15/687,818

Chen, J-G, **Gunter LE**, Jawdy SS, Yang X, Tuskan GA, Bryan AC. Modulating Laccase Enzyme to Regulate Cell Wall Biosynthesis and Recalcitrance in Plants. US Patent App. 15/647,819