Tiffany M. Lowe-Power, Ph.D.

USDA NIFA Postdoctoral Fellow
TLowePower@berkeley.edu
Google Scholar: goo.gl/Mi58Ks

Plant and Microbial Biology
University of California, Berkeley

EDUCATION

Ph.D. – **University of Wisconsin–Madison**, Microbiology (Dept. of Plant Pathology); GPA: 4.0 2017

B.S. – **Georgia Institute of Technology**, Applied Biology, *summa cum laude*; GPA: 3.97 2010

RESEARCH AND PROFESSIONAL EXPERIENCE

USDA NIFA Postdoctoral Fellow 2017-
Advisor: Steven Lindow, University of California Berkeley, Plant and Microbial Biology

USDA NIFA Graduate Research Fellow 2014-17
Graduate Research Assistant 2012-14
Advisor: Caitilyn Allen, UW-Madison, Plant Pathology

Graduate Research Assistant 2010-11
Advisor: Jay Bangs, UW-Madison (now SUNY-Buffalo), Medical Microbiology

Technician 2010
Centers for Disease Control and Prevention, Bacterial and Special Pathogens Branch

Undergraduate Research Assistant
Advisor: Lawrence Shimkets, University of Georgia, Microbiology 2008-09
Advisor: Patricia Sobecky, Georgia Tech, Biology 2008
Advisor: Nick Hud, Georgia Tech, Chemistry 2007

High School Research Assistant 2005
Advisor: Frank Loeffler, Georgia Tech, Environmental Engineering

PUBLICATIONS

Lowe-Power TM, Khokhani DK, and Allen C. 2018. How *Ralstonia solanacearum* exploits and thrives in the flowing plant xylem environment. *Trends in Microbiology*. (In Press)

Lowe-Power TM, Hendrich C, Von Roepenack-Lahaye E, Li B, Wu D, Mitra R, Dalsing BL, Ricca P, Naidoo J, Cook D, Jancewicz A, Masson P, Thomma B, Lahaye T, Michael AJ, Allen C. (2018). Metabolomics of tomato xylem sap during bacterial wilt reveals *Ralstonia solanacearum* produces abundant putrescine, a metabolite that accelerates wilt disease. *Environmental Microbiology*. 20(4) 1330-1349.

Khokhani DK, **Lowe-Power TM,** Tran TM, Allen C. (2017). The major *Ralstonia solanacearum* virulence regulator PhcA controls pathogen attachment, spread, and metabolic capacity during plant infection. *mBio.* 8(5) e00895-17.

Tancos M, **Lowe-Power TM**, Peritore-Galve C, Tran T, Allen C, Smart C. (2017). Plant-like bacterial expansins play contrasting roles in two tomato vascular pathogens. *Molecular Plant Pathology.* 19(5) 1210-1221.

Lowe-Power TM, Jacobs J, Ailloud F, Fochs B, Allen C. (2016). Degradation of the plant defense signal salicylic acid protects *Ralstonia solanacearum* from toxicity and enhances virulence on tobacco. *mBio*. 7:e00656-16.

Li B, **Lowe-Power TM**, Kurihara S, Gonzales S, Naidoo J, MacMillan JB, Allen C, Michael AJ. (2016). Functional identification of putrescine *C*- and *N*-hydroxylases. *ACS Chemical Biolog*y. 11:2782-2789.

Mason CJ, **Lowe-Power TM**, Rubert-Nason KF, Lindroth RL, Raffa KF. (2016). Interactions between bacteria

and aspen defense chemicals at the phyllosphere-herbivore interface. *J Chem Ecol.* 42:193-201.

Spraker J, Sanchez L, **Lowe TM**, Dorrestein P, Keller N. (2016). *Ralstonia solanacearum* lipopeptide induces chlamydospore development in fungi and facilitates bacterial entry into fungal tissues. *ISME J.* 10:2317–2330.

Ailloud F, **Lowe TM**, Cruveiller S, Robene I, Allen C, Prior P. (2016). *In planta* comparative transcriptomics of host-adapted strains of *Ralstonia solanacearum*. *PeerJ.* 4:e1549.

Lowe TM, Ailloud F, Allen C. (2015). Hydroxycinnamic acid degradation, a broadly conserved trait, protects *Ralstonia solanacearum* from chemical plant defenses and contributes to root colonization and virulence. *Molec Plant-Microbe Interact*. 28:286-97. (Functional Genomics Special Issue).

Ailloud F, **Lowe TM**, Cellier G, Roche D, Allen C, Prior P. (2015). Comparative genomic analysis of *Ralstonia solanacearum* reveals candidate genes for host specificity. *BMC Genomics*. 16:270.

Hazen TH, Lafon PC, Garrett NM, **Lowe TM**, Silberger DJ, Rowe LA, Frace M, Parsons MB, Bopp CA, Rasko DA, Sobecky, PA. (2015). Insights into the environmental reservoir and emergence of pathogenic *Vibrio parahaemolyticus* using comparative genomics. *Front Microbiol.* 24:204.

In Review or Revision

Dalsing BD & 13 co-authors (**Lowe-Power TM co-author**). Subgroups in the *Ralstonia solanacearum* species complex use divergent respiratory strategies to grow in tomato xylem. *Appl Environ Micro*. (In Review)

Honors, Awards, & Fellowships

Total Funds Raised: $254,800

USDA NIFA Postdoctoral Fellowship ($165,000)	2017-19
USDA NIFA Predoctoral Fellowship ($79,000)	2014-16
NIH Molecular Biosciences Training Grant (3 year support)	2010-13
Travel awards:	
XVII Congress on Molecular Plant-Microbe Interactions Student Travel Award ($750)	2016
A.C. Hayward Early Career Travel Award, 6th International Bacterial Wilt Symposium (€250)	2016
American Society of Microbiology Student Travel Award ($500)	2015
Luis Sequeira Student Travel Award, American Phytopathological Society ($500)	2013
Henry Vilas Travel Award, UW-Madison ($1800 total)	2015 & 2017
Microbiology Doctoral Training Program Travel Award, UW-Madison ($500)	2015
Dept. of Plant Pathology Student Travel Award, UW-Madison ($1,000 total)	2013 & 2014
NSF Partnerships in International Research and Education (PIRE) Nanjing Agricultural University and UGA; (Topic: Invasive Plant and Bacterial Species)	2009
NSF Research Experience for Undergraduates (REU) in Prokaryotic Biology, UGA ($4,000)	2008
President's Undergraduate Research Award (PURA), Georgia Tech ($1,500)	2008

Teaching and Mentoring Activities

Scientific Communication Exercise: "Looking at what a tiny bad thing eats and makes when it grows in sun-loving green things" in the "Up-Goer Five Challenge" to summarize Ph.D. dissertation using only the 500 most commonly used words in English writing. — 2017

Microbiology Teaching Fellow, UW-Madison — 2014 & 2015
Developed teaching materials and led two sections of **Critical Analyses in Microbiology (Micro 305)**, an interactive discussion-based course that trained upper-level undergraduates to read and analyze microbiology research articles (enrollment =15-16)

Presenter at Plant Pathology Professional Development seminar, "Under-publicized and — 2015

highly rewarding teaching opportunities at UW-Madison."

BioHouse Graduate Student Mentor, UW-Madison 2014
Facilitated small group post-seminar discussions among freshmen residents of the BioHouse residential learning community (enrollment = 66)

Teaching Assistant for Microbial Genetics & Molecular Machines UW-Madison 2012
Responsibilities: gave two lectures, led weekly discussion sections, led review sessions; wrote homework and test questions for this upper-level majors' course (enrollment = 64)

Research Mentor: 2011-18
Undergraduate students: Katie Shalvarjian, Julia Slezak, Brianna Fochs, Melanie Mustful
Graduate students: Jordan Bloom, Kaitlin Mitchel, Melanie Callaghan, Connor Hendrich, Florent Ailloud, Patrizia Ricca

ADDITIONAL PROFESSIONAL TRAINING

Python Bootcamp, UC Berkeley (1 week) 2018

How to Lead Effectively, UC Berkeley Science Leadership & Management Series Workshop (1 day) 2018

KBase Workshop on Comparative Genomics and Functional Analysis (1 day) 2018
Joint Genomes Institute Users' Meeting

Expanding Undergraduate Success in STEM Conference (1 day) 2017

Effective and High Impact Scientific Writing Workshop (1 day) 2015

U. Michigan Metabolomics Research Core Summer Workshop (1 week) 2014

PROFESSIONAL SERVICE

Member: American Phytopathological Society (APS), International Society for Molecular Plant-Microbe Interactions (IS-MPMI), American Society for Microbiology (ASM), and Alpha Chi Sigma Professional Chemistry Fraternity

Ad hoc Reviewer: *Australasian Plant Pathology J*, *Frontiers in Plant Science, ISME J, mBio*, *Phytopathology*, *Tropical Plant Pathology*

Reviewer, American Phytopathology Society Student Travel Awards 2017 & 2014

Contributor, XVII Congress on Molecular Plant-Microbe Interactions Meeting Report 2016
https://doi.org/10.1094/MPMI-29-12-S1

Session Moderator, APS Annual Meeting: Bacterial Virulence in the Xylem and Bacterial Virulence Mechanisms 2015 & 2013

Committee Service:

Diversity Committee, UC Berkeley, Plant and Microbial Biology 2017-present

Graduate Student Recruiting, UW–Madison 2011-17
Organized interviews, hosts, and activities on Microbiology Recruitment Committee (40-50 recruits annually, 2012-14); Graduate student host for Plant Pathology and Microbiology departments (2011-17)

Steering Committee, Microbiology Doctoral Training Program, UW–Madison 2014-15

Advisory Committee, NIH Molecular Biosciences Training Grant, UW–Madison 2013-16
Reviewed student applications for admission; reviewed faculty trainer applications

Student Advisory Board Member for the College of Sciences, Georgia Tech 2008-10

School of Biology Student Advisory Council, Georgia Tech 2008-10
Organized community-building events; Participated in evaluations of curriculum

Women's Recruitment Board Member, Georgia Tech 2007-10
Organized events to promote women's recruitment and to increase gender parity

Secretary, Alpha Chi Sigma Professional Chemistry Fraternity 2007-08

INVITED TALKS

Ralstonia solanacearum-produced putrescine facilitates bacterial wilt disease of plants. *Gordon Research Conference on Polyamines*. Waterville Valley, NH. 2017.

Bacterial wilt disease changes the xylem sap metabolome. *International Bacterial Wilt Symposium*, Toulouse, France. 2016

Untargeted metabolomic analysis reveals that *Ralstonia solanacearum* alters tomato xylem sap composition. Seminar at *Interactions Plantes-Microorganismes-Environnement (IPME-IRD)* Montpellier, France. 2016.

RELEVANT PRESENTATIONS

Oral Presentations *****received presentation award

***Lowe-Power TM**. (2016) Untargeted metabolomic analysis reveals that *Ralstonia solanacearum* alters tomato xylem sap composition. 12th Rencontres *Plantes-Bactéries*. Aussois, France.
Honorable mention presentation (one of three selected out of 40 presentations).

***Lowe TM**. (2015) Untargeted metabolomic analysis reveals that *Ralstonia solanacearum* alters tomato xylem sap composition. *North Central Branch-American Society for Microbiology*, LaCrosse, WI.
1st place presentation

Lowe TM. (2015) Untargeted metabolomic analysis reveals that *Ralstonia solanacearum* alters tomato xylem sap composition. *American Phytopathology Society Annual Meeting*, Pasadena, CA.

***Lowe TM**. (2014) Hydroxycinnamic acid (HCA) degradation contributes to *Ralstonia solanacearum* virulence by eliminating plant defense molecules. *American Phytopathology Society North Central Division*, Madison, WI.
2nd place presentation

Lowe TM. (2013). *Ralstonia solanacearum* degrades the plant defense molecules hydroxycinnamic acids (HCAs). *American Phytopathology Society Annual Meeting*, Austin, TX.

Poster Presentations

Lowe-Power TM and Lindow SE. (2018) Effects of codon bias on expression of heterologous genes in *Xylella fastidiosa. International Congress on Plant Pathogenic Bacteria*. Boston, MA.

Lowe-Power TM, Pessoti R, Traxler M, and Lindow SE. (2018) Message in a Bottle: Vesicle-mediated communication by the xylem phytopathogens *Ralstonia solanacearum* and *Xylella fastidiosa.* Plant Sciences Symposium, UC-Davis.

Lowe-Power TM and Lindow SE. (2018) Revisiting acyl homoserine lactone (AHL) quorum sensing in *Ralstonia solanacearum*. *Joint Genomes Institute Users' Meeting.* San Francisco, CA.

Lowe-Power TM, Dalsing B, Jancewicz A, Li B, Mitra R, Von Roepenack-LaHaye E, Masson P, Michael T, and Allen C. (2016) Bacterial wilt disease changes the xylem sap metabolome. *Molecular Plant Microbe Interactions (IS-MPMI) XVII Congress,* Portland, OR.

Lowe TM, Jancewicz A, Masson P, and Allen C. (2015) Metabolomics reveals putrescine is involved in *Ralstonia solanacearum*-host interactions. *American Society for Microbiology General Meeting*, New Orleans, LA.

Lowe TM, Jacobs J, Ailloud F, and Allen C. (2014) The pathogen *Ralstonia solanacearum* degrades the key immune signal salicylic acid during infection of tomato plants. *American Phytopathological Society*

Annual Meeting, Minneapolis, MN.

Lowe TM, Mitra R, Milling A, Mustful M, and Allen C. (2013) Degradation of plant antimicrobial hydroxycinnamic acids contributes to pathogenic success of *Ralstonia solanacearum*. *American Society for Microbiology General Meeting*, Denver, CO.

References

Dr. Caitilyn Allen, *Ph.D. Thesis Advisor*
Ethyl and O.N. Allen Professor
Department of Plant Pathology
University of Wisconsin–Madison
Madison, WI 53706
Email: callen@wisc.edu
Phone: (608) 262-9578

Dr. Heidi Goodrich-Blair, *Ph.D. Thesis Committee Chair*
David and Sandra White Professor
Head of Microbiology
Department of Microbiology
University of Tennessee Knoxville
Knoxville, TN 37996
Email: hgblair@utk.edu
Phone: (865) 974-6358

Dr. Christine Smart, *Collaborator*
Professor
Plant Pathology and Plant-Microbe Biology
630 West North Street
Cornell University
Geneva, NY 14456
Email: cds14@cornell.edu
Phone: (315) 787-2441

Dr. Steven E. Lindow, *Postdoctoral Sponsor*
Professor and Executive Associate Dean
Department of Plant and Microbial Biology
University of California Berkeley
Berkeley, CA 94720
Email: icelab@berkeley.edu
Phone: (510) 642-4174

Dr. Andrew Bent
Professor
Department of Plant Pathology
University of Wisconsin–Madison
Madison, WI 53706
Email: afbent@wisc.edu
Phone: (608) 265-3034