

BIOGRAPHICAL SKETCH

LANCE CADLE-DAVIDSON
RESEARCH PLANT PATHOLOGIST
USDA-ARS GRAPE GENETICS RESEARCH UNIT (GGRU)

EDUCATION

1999-2003 Cornell University. Ph.D., Plant Pathology
1994-1997 Kansas State University. B.S., Biochemistry, *Summa cum Laude*

PROFESSIONAL EXPERIENCE

Plant Pathologist, USDA-ARS GGRU	August 2003-February 2016
Research Plant Pathologist, USDA-ARS GGRU	February 2016-Present
Adjunct Associate Professor, Cornell University	October 2003-Present

MAJOR RESEARCH AND PROFESSIONAL INTERESTS

My research program addresses critical needs for sustainable management of grapevine fungal and oomycete diseases. Our collaborative research aims to develop new grape varieties that are healthy, delicious, and disease resistant. In the process, we are analyzing billions of data points to better understand the biology of host and pathogen co-evolution and how their DNA sequences determine which will prevail: the grapevine or the fungus. This basic scientific research using cutting-edge genomic tools enhances traditional breeding approaches, as we develop eco-friendly disease resistance that will last for future generations.

AWARDS RECEIVED

2015 USDA-ARS T.W. Edminster Award
2013 Australian Society of Viticulture and Oenology, Viticulture Paper of the Year
2012 USDA-ARS T.W. Edminster Award
2011 USDA-ARS-NAA Early Career Scientist of the Year
J. William Fulbright Fellowship
Barry M. Goldwater Scholar
APS Storkan-Hanes Foundation Award

LIST OF PUBLICATIONS (last 5 years):

REFEREED JOURNAL ARTICLES

- Soon Li Teh, Jonathan Fresnedo-Ramírez, Matthew D. Clark, David M. Gadoury, Qi Sun, Lance Cadle-Davidson, James J. Luby. 2017. Genetic dissection of powdery mildew resistance in interspecific half-sib grapevine families using SNP-based maps. *Molecular Breeding* 37:1.
- Lance Cadle-Davidson, David Gadoury, Jonathan Fresnedo-Ramírez, Shanshan Yang, Paola Barba, Qi Sun, Elizabeth M. Demmings, Robert Seem, Michelle Schaub, Anna Nowogrodzki, Hema Kasinathan, Craig Ledbetter, Bruce I. Reisch. 2016. Lessons from a phenotyping center revealed by the genome-guided mapping of powdery mildew resistance loci. *Phytopathology* 106:1159-1169.
- Jonathan Fresnedo-Ramírez, Qi Sun, Ching-Feng Hwang, Craig A. Ledbetter, David W. Ramming, Anne Y. Fennell, M. Andrew Walker, James J. Luby, Matthew D. Clark, Jason P. Londo, Lance E. Cadle-Davidson, Gan-Yuan Zhong, Bruce I. Reisch. 2016. Towards the elucidation of the cytoplasmic diversity of North American Grape Breeding Programs. *Molecular Breeding* 36:116.
- Shanshan Yang, Jonathan Fresnedo-Ramírez, Qi Sun, David Manns, Gavin L. Sacks, Anna Katharine Mansfield, James Luby, Jason Londo, Bruce Reisch, Lance Cadle-Davidson and Anne Fennell. 2016. Next generation mapping of enological traits in an F₂ interspecific grapevine hybrid family. *PlosONE*, in press.
- Shanshan Yang, Jonathan Fresnedo-Ramírez, Minghui Wang, Linda Cote, Peter Schweitzer, Paola Barba, Elizabeth M. Takacs, Matthew Clark, James Luby, David C. Manns, Gavin Sacks, Anna Katharine Mansfield, Jason Londo, Anne Fennell, David Gadoury, Bruce Reisch, Lance Cadle-Davidson and Qi Sun. 2016. A next-generation marker genotyping platform (AmpSeq) in heterozygous crops: a case study for marker assisted selection in grapevine. *Horticulture Research*, in press.
- Michelle M. Moyer, Jason Londo, David M. Gadoury, and Lance Cadle-Davidson. 2015. Cold Stress-Induced Disease Resistance (SIDR): Indirect effects of low temperatures on host-pathogen interactions and disease progress in the grapevine powdery mildew pathosystem. *European Journal of Plant Pathology*, DOI 10.1007/s10658-015-0745-1.
- Katie E. Hyma, Paola Barba, Minghui Wang, Jason Londo, Charlotte Acharya, Sharon Mitchell, Qi Sun, Bruce Reisch, Lance Cadle-Davidson. 2015. Heterozygous Mapping Strategy (HetMappS) for High Resolution Genotyping-by-Sequencing Markers: a case study in grapevine. *PLoS ONE* 10(8): e0134880. doi:10.1371/journal.pone.0134880.

- Kono, A., Sato, A., Reisch, B.I., Cadle-Davidson, L. 2015. Effect of Detergent on the Quantification of Grapevine Downy Mildew Sporangia from Leaf Discs. *HortScience* 50:656–660.
- Paola Barba, Lance Cadle-Davidson, Erin Galarneau, Bruce Reisch. 2015. Mechanisms of quantitative resistance to *Erysiphe necator* in *Vitis rupestris* B38. *Phytopathology* 105:1097-1103.
- Angela Feechan, Marianna Kocsis, Summaira Riaz, Wei Zhang, David M. Gadoury, M. Andrew Walker, Ian B. Dry, Bruce Reisch, Lance Cadle-Davidson. 2015. Strategies for *RUN1* deployment using *RUN2* and *REN2* to manage grapevine powdery mildew informed by studies of race-specificity. *Phytopathology* 105:1104-1113.
- Myles, S., Mahanil, S., Harriman, J., Gardner, K., Franklin, J.L., Reisch, B.I., Ramming, D.W., Owens, C.L., Li, L., Buckler, E.S., and Cadle-Davidson, L. 2015. Genetic mapping in grapevine using SNP microarray intensity values. *Molecular Breeding* 35:88.
- Frenkel, O., Cadle-Davidson, L., Wilcox, W.F., and Milgroom, M.G. 2014. Mechanisms of resistance to an azole fungicide in the grapevine powdery mildew fungus, *Erysiphe necator*. *Phytopathology* 105:370-377.
- Mahanil, S., Lagerholm, S., Garris, A., Owens, C.L., Ramming, D.W., and Cadle-Davidson, L. 2014. Development of molecular markers for powdery mildew resistance in grapevines. *Acta Horticulturae* 1046:91-99.
- Reisch, B.I., Mahanil, S., Consolie, N., Luce, R.S., Wallace, P.G., Cadle-Davidson, L. 2014. Examination of marker-assisted selection for powdery and downy mildew resistance. *Acta Horticulturae* 1046:151-155.
- P. Barba, L. Cadle-Davidson, J. Harriman, J. C. Glaubitz, S. Brooks, K. Hyma, and B. Reisch. 2014. Grapevine powdery mildew resistance and susceptibility loci identified on a high-resolution SNP map. *Theoretical and Applied Genetics* 127:73-84.
- S. Saito, L. Cadle-Davidson and W. F. Wilcox. 2014. Selection, fitness, and control of grape isolates of *Botrytis cinerea* variably sensitive to fenhexamid. *Plant Disease* 98:233-240.
- A. Feechan, C. Anderson, L. Torregrosa, A. Jermakow, P. Mestre, S. Wiedemann-Merdinoglu, D. Merdinoglu, A. Walker, L. Cadle-Davidson, B. Reisch, S. Aubourg, N. Bentahar, B. Shrestha, A Bouquet, A.-F. Adam-Blondon, M.R. Thomas, and I. Dry. 2013. Genetic dissection of a TIR-NB-LRR locus from the wild North American grapevine species *Muscadinia rotundifolia* identifies