

KIRA M. VELEY, PhD

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RESEARCH EXPERIENCE

Research Scientist, Donald Danforth Plant Science Center, St. Louis Sept. 2015 - present
Co-Mentors: Rebecca Bart and Jim Carrington

Research focuses:

- Development of molecular tools for use in orphan crops (e. g. cassava).
- Improve disease resistance in cassava using CRISPR/Cas9 genome editing techniques.
- Characterize the role of the sorghum microbiome in stress tolerance using high-throughput phenotyping methods.

Postdoctoral Fellow, Department of Biology April 2010 – Sept. 2015
Mentor: Elizabeth Haswell, Washington University, St. Louis

Research Highlights:

- Developed assay to quantify the effect that a mechanosensitive protein has on cell death signaling and ROS production in plant cells.
- Discovered that plastids are under hypoosmotic stress under normal growth conditions and that mechanosensation is used to relieve that stress.
- Discovered evidence for importance of mechanosensation in plants and pathogen detection.
- Introduced lab to a practical protocol for protoplast isolation in tobacco and Arabidopsis as well as recombinant protein production via transient expression in plants.

Postdoctoral Fellow Sept. 2009 - April 2010
Mentor: Eliot Herman, Danforth Plant Science Center, St. Louis
Research: Improved protocol for transformation of *Camelina sativa*

Doctoral Thesis, Department of Biology Aug. 2004 - Aug. 2009
Mentor: Scott Michaels, Indiana University, Bloomington
Research Highlights:

- Discovered additional functional roles for floral regulatory genes.

Honors Thesis and Research Assistant, Dept. of Biology May 2002 – Aug. 2004
Mentor: Fred Sack, Ohio State University, Columbus
Research Highlights:

- Discovered that the regulation of stomatal differentiation is organ-specific.

EDUCATION

- Indiana University**, Bloomington, IN 2009
Ph.D., Molecular Biology and Genetics
- Ohio State University**, Columbus, OH 2004
B.S., Biology, College Honors and Distinction

SELECTED PUBLICATIONS

Berry JC, Fahlgren N, Pokorny AA, Bart RS, **Veley K.M.**, (2018) An automated, high-throughput method for standardizing image color profiles to improve image-based plant phenotyping. *PeerJ*, 2018. 6:e5727.

Veley, K.M., Berry, J.C., Fentress, S.J., Schachtman, D.P., Baxter, I., and Bart, R., High-throughput profiling and analysis of plant responses over time to abiotic stress. *Plant Direct*, 2017 1(4): p. 1-13.

Veley, K.M., Maksaev, G., Frick, E.M., January, E., Kloepper, S.C., and Haswell, E.S., MSL10 has a regulated cell death signaling activity that is separable from its mechanosensitive ion channel activity. *Plant Cell*, 2014. 26(7): p. 3115-3131.

Veley, K.M., Marshburn, S., Clure, C.E, and Haswell, E.S., Mechanosensitive Channels Protect Plastids from Hypoosmotic Stress During Normal Plant Growth. *Current Biology*, 2012. 22(5): p. 408-413.

Veley, K.M. and Haswell, E.S., Plastids and Pathogens: Mechanosensitive Channels and Survival in a Hypoosmotic World. *Plant Signaling and Behavior*, 2012. 7(6): p. 668-671.

Feng, W., Jacob, Y., **Veley, K.M.**, Ding, L., Yu, X., Choe, G., and Michaels, S.D., Hypomorphic alleles reveal FCA-independent roles for FY in the regulation of FLC. *Plant Physiology*, 2011. 155(3): p. 1425-1434.

Veley, K.M. and S.D. Michaels, Functional Redundancy and New Roles for Genes of the Autonomous Floral-Promotion Pathway. *Plant Physiology*, 2008. 147(2): p. 682-695.

LEADERSHIP TRAINING and MENTORSHIP

- Co-chair*, Committee for Scientific Leadership and Training 2016-2017
- Mentor*, Wash U Undergraduate Research Fellow, Diana Fasanello 2016-2017
- Mentor*, African Women in Agricultural Research and Development, Ihuoma Okwuonu 2016
- Graduate Rotation Project Supervisor*, Washington University 2013, 2016-18
- Mentor*, Wash U Summer Undergraduate Research Fellowship, Sarah Kloepper Summer 2013
- Mentor*, Wash U, Undergraduate Independent Study Course Spring 2013
- Mentor*, Senior Research Program for local high school (MICDS) Spring 2012
- Mentor*, Wash U, Undergraduate Independent Study Course, Ray Kim Spring, Summer 2012
- Mentor*, Indiana University, three undergraduate research assistants 2007-2008

PRESENTATIONS and SCIENCE COMMUNITY INVOLVEMENT

<i>Speaker</i> , Ag Innovation Showcase, St. Louis, MO	September 2018
<i>Poster</i> , ASPB Annual Conference, Montreal, Quebec, Canada	July 2018
<i>Moderator</i> , Women on the Rise Program, Professor Ruth Oniang'o, St. Louis, MO	May 2018
<i>Speaker</i> , Empowerment Project/Women in STEM Discussion Panel, St. Charles, MO	Oct. 2017
<i>Poster</i> , ASPB Annual Conference, Honolulu, HI	July 2017
<i>Speaker</i> , Advanced Breeding Communications Conference, St. Louis, MO	Nov. 2016
<i>Poster</i> , ASPB-Midwest Chapter Meeting, St. Louis, MO	March 2015
<i>Poster</i> , Host-Microbe Interactions Symposium, St. Louis, MO	September 2014
<i>Speaker</i> , Biology Dept. Seminar Series, SIUE, Edwardsville, IL	February 2014
<i>Speaker</i> , Plant Biology Annual Retreat, St. Louis, MO	October 2013
<i>Poster</i> , ASPB Annual Conference, Providence, RI	July 2013
<i>Speaker</i> , Midwest Plant Cell Dynamics Meeting, Madison, WI	June 2013
<i>Poster</i> , Plant Biology Annual Retreat, St. Louis, MO	Oct. 2012 - 2014
<i>Poster</i> , Wash U Postdoc Research Symposium	March 2012
<i>Speaker</i> , Plant Biology Annual Retreat, St. Louis, MO	October 2011
<i>Judge</i> , Indiana Regional Science Fair, Bloomington, IN	April 2008, 2009
<i>Member</i> , American Society of Plant Biologists (ASPB)	2007-present
<i>Poster</i> , ASPB Plant Biology and Botany Joint Congress, Chicago, IL	July 2007
<i>Poster</i> , UC Riverside Symposium in Plant Biology, Riverside, CA	January 2007

FELLOWSHIPS, GRANTS and AWARDS

NSF award # 1827761. "EDGE": High Efficiency Identification of Products of Homologous Recombination in Plants as a Tool to Test Gene Function," is under the direction of Blake C. Meyers, Kira Veley, Rebecca S. Bart.	Sept. 2018-21 Award: \$1 million
JGI Community Science Program - Microbial/Metagenome Support	Fall 2016
Outstanding Research Poster Award, WUSTL PMB Annual Retreat	2014, 2012
ASPB Travel Grant	2013
NSF Travel Fellowship	2013
NAASC ICAR Travel Grant (declined)	2013
National Science Foundation Graduate Training Fellowship	2004-2007
Indiana University Department of Biology Travel Award	2007
Deanman Undergraduate Research Forum Presenter Award	2004
Dean's Undergraduate Research Fund Award	2003
Scarlet and Grey Scholarship	2000-2004
Trustees Scholarship	2000-2004