

## ELIZABETH S. HASWELL

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Associate Professor  
Department of Biology  
Washington University  
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### RESEARCH INTERESTS

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I am interested in how molecules and cellular structures perceive force. Little is known about signaling in response to stimuli that are mechanical in nature, such as touch, osmotic pressure, or gravity—signals that are crucial for the normal growth and development of plants. My group is currently studying the structure, function, regulation, and evolution of several families of mechanosensitive ion channels, using live-imaging, single-channel patch clamp electrophysiology, and complementary biochemical and molecular genetic approaches. We are also engaged in functional and genetic screens designed to identify novel mechanosensory proteins, and in the development of new tools for the non-invasive analysis of membrane forces.

### APPOINTMENTS

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#### **Washington University in St. Louis**

Associate Professor, Department of Biology  
Assistant Professor, Department of Biology

2014-present  
2007-2014

### EDUCATION

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#### **California Institute of Technology**

Postdoctoral Training

2000-2007

#### **University of California-San Francisco**

Ph.D., Biochemistry

1994-2000

#### **University of Washington, Seattle**

B.S., Biochemistry, College Honors, *magna cum laude*

1989-1993

### FELLOWSHIPS AND AWARDS

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HHMI-Simons Faculty Scholar	2016
Visiting Professor, Sainsbury Lab, Cambridge University	2016
Visiting Fellow, Clare Hall, Cambridge, UK	2016
NSF Early Faculty Career Development Award	2013
Colvin Fund for Research Initiatives in Biomedical Sciences	2001
DOE Fellow of the Life Sciences Research Foundation	2000
UCSF Chancellor's Award for the Advancement of Women	1999
National Science Foundation Graduate Fellowship	1994
Merck Index Award for Excellence in Chemistry	1993
University of Washington Honors Scholarship	1990
National Merit Foundation Scholarship	1989
Seafirst Scholar Excellence Award	1989
University of Washington President's Scholarship	1989

## PUBLICATIONS

## Peer-Reviewed Journals

1. K. Fal, M. Liu, A. Duisembekova, E. S. Haswell and O. Hamant. (2017). Phyllotactic Variance is Regulated by the Paf1C Protein VIP3. *Development* 144:4428-4436. Selected to appear in a special issue celebrate the 100-year anniversary of D'Arcy Thompson's 'On Growth and Form'.
2. D. S. Stone, E. S. Haswell and E. Sztul. (2017). Finding your inner modeler: an NSF-sponsored workshop to introduce cell biologists to modeling/computational approaches. *Cellular Logistics*, 7:4, e1382669.
3. E. S. Haswell. (2017). The Sustainable Professor. *eLIFE*, 6:e31083.
4. D. Basu and E. S. Haswell. (2017). Plant Mechanosensitive Ion Channels: An Ocean of Possibilities. *Current Opinion in Plant Biology*, 40:43-48.
5. O. Hamant and E. S. Haswell. (2017). Life Behind the Wall: Sensing Mechanical Cues in Plants. *BMC Biology*, 15:59.
6. E. S. Hamilton<sup>2</sup> & E. S. Haswell. (2017). The Tension-sensitive Ion Transport Activity of MSL8 is Critical for its Function in Pollen Hydration and Germination. *Plant Cell and Physiology*, 58:1222-1237. Preprint highlighted on The Node blog. Editor's Choice and Author profile; also featured on the cover.
7. G. S. Jensen, K. Fal, O. Hamant and E. S. Haswell. (2017). The RNA Polymerase-Associated Factor 1 (Paf1) Complex is Required for Touch Responses in Plants. *Journal of Experimental Botany* 68:499-511.
8. C. P. Lee, G. Maksaev, G. Jensen, M. Murcha, M. E. Wilson, M. Fricker, R. Hell, E. S. Haswell, A. H. Millar and L. Sweetlove. (2016). MSL1 is a mitochondrial mechanosensitive ion channel that dissipates membrane potential and maintains redox homeostasis in mitochondria during abiotic stress. *Plant Journal* 88:809-825.
9. M. E. Wilson, Matt Mixdorf, R. H. Berg and E. S. Haswell. (2016). Plastid Osmotic Shock Influences Dedifferentiation at the Plant Shoot Apex. *Development* 143: 3382-3393.
10. D. R. Luesse, M. E. Wilson and E. S. Haswell. (2015). RNA-Sequencing Analysis of the *msl2msl3*, *crl*, and *ggps1* Mutants Indicates that Diverse Sources of Plastid Dysfunction do not Alter Leaf Morphology Through a Common Signaling Pathway. *Frontiers in Plant Science* 6:1148.
11. E. S. Hamilton<sup>2</sup>, G. S. Jensen, G. Maksaev, A. Katims<sup>1</sup>, A.M. Sherp<sup>2</sup> and E. S. Haswell. (2015). Mechanosensitive Ion Channel MSL8 Regulates Osmotic Forces During Pollen Hydration and Germination. *Science* 350:438-441.
12. S. M. Brady, M. Burow, W. Busch, O. Carlborg, K. J. Denby, J. Glazebrook, E. S. Hamilton<sup>2</sup>, S. Harmer, E. S. Haswell, J. N. Maloof, D. Kliebenstein. (2015). Reassess the t-test: Interact with All Your Data Via ANOVA. *Plant Cell* 27:2088-94.
13. E. S. Haswell and P. E. Verslues. (2015). The Ongoing Search for the Molecular Basis of Plant Mechanosensing. *Journal of General Physiology* 145:398-394. Featured on the cover of the May 2015 issue.
14. E. S. Hamilton<sup>2</sup>, A. Schlegel<sup>2</sup>, and E. S. Haswell. (2015). United in Diversity: Plant Mechanosensitive Channels. *Annual Review of Plant Biology* 66:113-137.
15. K. M. Veley, G. Maksaev, S. M. Kloepper<sup>1</sup>, E. M. Frick<sup>2</sup>, E. January and E. S. Haswell. (2014). MSL10 has a Regulated Cell Death Signaling Activity that is Separable from its Mechanosensitive Ion Channel Activity. *Plant Cell* 26:3115-31.
16. S. Bell, J. Blumstein, K. Brose, A. Carroll, J. Chang, J. Charles, E. S. Haswell, M. Michelitsch, J. Owens, C. K. Patil, R. Smith, J. Tupy, E. Walsh, T. Ware. (2014). Defining Success in Graduate School. *Molecular Biology of the Cell* 25:1942-1944.
17. M. E. Wilson<sup>2</sup>, M. R. Basu<sup>1</sup>, G. B. Bhaskara, P. E. Verslues, and E. S. Haswell. (2014). Plastid Osmotic Stress Activates Cellular Osmotic Stress Responses. *Plant Physiology* 165:119-128.
18. M.E. Wilson<sup>2</sup>, G. Maksaev, and E. S. Haswell. (2013). MscS-like Mechanosensitive Ion Channels in Plants and Microbes. *Biochemistry* 52 (34): 5708–5722.

19. G. E. Monschauen & E. S. Haswell. (2013). A Force of Nature: Molecular Mechanisms of Mechanoperception. *J. Experimental Botany* 64(15):4663-80.
20. G. Maksaev and E. S. Haswell. (2013). Recent Characterizations of MscS and its Homologs Provide Insights into the Basis of Ion Selectivity. *Channels* 7(3):215-220. Featured on the cover of the May/June 2013 issue.
21. G. Maksaev and E. S. Haswell. (2012). MscS-Like10 is a Stretch-Activated Ion Channel from *Arabidopsis thaliana* with a Preference for Anions. *Proceedings of the National Academy of Sciences* 109:19015-19020.
22. G. S. Jensen and E. S. Haswell. (2012). Functional Analysis of Conserved Motifs in the Mechanosensitive Channel Homolog MscS-Like2 from *Arabidopsis thaliana*, *PLOS ONE* 7(6):e40336.
23. K. M. Veley, S. Marshburn, C. Clure<sup>1</sup> and E. S. Haswell. (2012). Mechanosensitive Channels Protect Plastids from Hypoosmotic Shock During Normal Plant Growth. *Current Biology* 22:408-413.
24. K. M. Veley and E. S. Haswell. (2012). Plastids and Pathogens: Mechanosensitive Channels and Survival in a Hypoosmotic World. *Plant Signaling & Behavior* 7:668-671.
25. M. E. Wilson<sup>2</sup> and E. S. Haswell. (2012). A Role for Mechanosensitive Channels in Chloroplast and Bacterial Fission. *Plant Signaling & Behavior* 7:157-60.
26. G. Maksaev and E. S. Haswell. (2011). Expression and Characterization of the Bacterial Mechanosensitive Channel MscS in *Xenopus laevis* Oocytes. *J. General Physiology* 138: 641-9.
27. M. E. Wilson<sup>2</sup>, G. S. Jensen, and E. S. Haswell. (2011). Two Mechanosensitive Channel Homologs Influence FtsZ Ring Placement in *Arabidopsis*. *Plant Cell* 23: 2939-2949. Featured on the cover of the May/June 2013 issue.
28. E. S. Haswell, R. Phillips, and D. R. Rees. (2011). Mechanosensitive Channels: What Do They Do and How Do They Do It? *Structure* 19: 1356-1369.
29. E. S. Haswell<sup>3</sup>, R. Peyronnet<sup>3</sup>, H. Barbier-Brygoo, E. M. Meyerowitz, and J-M. Frachisse. (2008). Two MscS Homologues Required for Mechanosensitive Channel Activities in the *Arabidopsis* Root. *Current Biology* 18: 730-734.
30. R. Peyronnet, E. S. Haswell, H. Barbier-Brygoo, and J-M. Frachisse. (2008). AtMSL9 and AtMSL10: Sensors of Plasma Membrane Tension in the *Arabidopsis* Root. *Plant Signaling & Behavior* 3: 726-729.
31. E. S. Haswell and E. M. Meyerowitz. (2006). MscS-like Proteins Control Plastid Size and Shape in *Arabidopsis thaliana*. *Current Biology* 16: 1-11. Dispatch: K. Pyke. (2006). Plastid Division: the Squeezing gets Tense. *Current Biology* 16: R60-2
32. E. S. Haswell. (2003). Gravity Perception: How Plants Stand up for Themselves. *Current Biology* 13: R761-R763
33. D. J. Steger, E. S. Haswell, A. L. Miller, S. R. Went, and E. K. O'Shea. (2003). Regulation of Chromatin Remodeling by Inositol Polyphosphates. *Science* 5603: 114-116.
34. E. S. Haswell and E. K. O'Shea. (1999). An In Vitro System Recapitulates Chromatin Remodeling at the PHO5 Promoter. *Molecular and Cellular Biology* 19: 2817-2827.
35. E. S. Haswell and E. K. O'Shea. (1998). Specificity of ATP-Dependent Chromatin Remodeling at the Yeast PHO5 Promoter. *Cold Spring Harbor Symposium on Quantitative Biology* 63: 563-567.

### Book Chapters

1. G. Maksaev and E. S. Haswell. (2015). Expression and Characterization of Mechanosensitive Ion Channels in *Xenopus* Oocytes. *Plant Gravitropism: Methods and Protocols*. 1309:151-69.
2. E. S. Haswell (2007). MscS-like Proteins in Plants. *Current Topics in Membranes* 58: 329-359.

### Submitted

1. G. Maksaev, J. Shoots, S. Ohri and E. S. Haswell. Nonpolar Residues in the Presumptive Pore-Lining Helix of Mechanosensitive Channel MSL10 Influence Channel Behavior and Confirm its Non-Conducting Function. BioRxiv Preprint: <https://doi.org/10.1101/264283>

<sup>1</sup>Undergraduate Author, <sup>2</sup>PhD student Author, <sup>3</sup>Equal Contribution

## VIDEOS, SOCIAL MEDIA, and SCIENCE COMMUNICATION

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Lab website: <http://pages.wustl.edu/haswell>

Haswell Lab Blog, A Force of Nature: <http://pages.wustl.edu/haswell/blog>

Haswell Lab YouTube Channel: [https://www.youtube.com/channel/UCSfXeijJESvUq0Dzve0R\\_Sg](https://www.youtube.com/channel/UCSfXeijJESvUq0Dzve0R_Sg)

Whiteboard video on MS channels in pollen: <https://youtu.be/ule69I82xTo>

Featured interview on #QuestionTogether video by Merck KGaA

Contribution to “How Does She Do It?” series: <https://plantae.org/blog/i-dont-know-how-she-does-it-stories-of-plant-scientists-with-children/>

Twitter handle @ehaswell

Co-host of The Taproot Podcast, first season July 2017: <https://plantae.org/podcasts/the-taproot/>

## PROFILES in the POPULAR PRESS

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“Researchers identify proteins making up mechanosensitive ion channels,” Julia Strait. WUSTL Record, June 3, 2008

“Plants feel the force,” Diana Lutz. WUSTL Record, October 21, 2011

“Como hacen las plantas para “sentir,” Alejandra Martin. BBC Mundo, October 31, 2011

“Leaf Me Alone! Plants Are More Sensitive Than We Realize,” Jeannette Cooperman. STL Magazine, April, 2012.

“Mechanically gated channels play a role in plant sex,” Alexandra Taylor. Wild Types, a blog for ASBMB Today, October 22, 2015

“Question together: What are you Curious About?” A promotional video for Merck KGaA featuring commentary by Liz Haswell. October 27, 2016

“Scientists discover ancient safety valve linking pollen to bacteria” Eric Hamilton and Diana Lutz. WUSTL Record, October 28, 2015

“Sharing Science: Mechanosensitive Channel MSL8 Regulates Osmotic Forces During Pollen Hydration and Germination” Stacey Kelley and Reyda González-Nieves, NSF MCB Blog, Dec 18, 2015

“Hydropowered Pollen” by Karen Zusi, Editor’s Choice, The Scientist, February 1, 2016

“I’m Plant Scientist Elizabeth Haswell and This is How I Work,” by Ian Street, ASPB Blog, March 14, 2016

“Listening In” by Diana Lutz. WUSTL the Source. August 10, 2017

“2 St. Louis plant scientists use podcast to dig deep into the struggles of research” by Eli Chen. STL Public Radio

## INVITED TALKS

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### Scientific Meetings

1. Gordon Conference on Mechanotransduction. Biddeford, ME (June 2005)
2. Gordon Conference on Mechanotransduction, Biddeford, ME (July 2007)
3. Gordon Conference on Yeast and Plant Cytoskeleton, Il Ciocco, Italy (August 2008)
4. Gordon Conference on Mitochondria and Chloroplasts, Biddeford, ME (August 2008)
5. Plant Stress Symposium, Academia Sinica, Taipei, Taiwan (March 2009)
6. Gordon Conference on Osmotic Regulation and Mechanotransduction (July 2009)
7. Southern Section ASPB Keynote Address, Myrtle Beach, SC (March 2012)
8. Interdisciplinary Plant Biology Symposium, U of Missouri (May 2012)
9. Donald Danforth Annual Retreat Keynote Speaker (May 2012)
10. Woods Hole Physiology Course, Marine Biological Labs (June 2014)
11. Gordon Conference on Mitochondria and Chloroplasts, Smithfield, RI (July 2012)
12. Plant Biomechanics Conference, Auvergne, France (August 2012)
13. ASPB “Mechanosensation” Minisymposium, Providence, RI (July 2013)
14. Midwest Society for Developmental Biology, St. Louis, MO (September 2013)
15. American Society for Space and Gravitational Research Meeting, Orlando FL (Nov 2013)
16. Midstates Consortium for Math and Science Meeting Keynote Speaker, St. Louis, MO (Nov 2013)

17. Biophysical Society Annual Meeting, San Francisco, CA (Feb 2014)
18. Northwest Regional Developmental Biology Meeting, Friday Harbor, WA (March 2014)
19. Pollen Research Coordination Network Meeting, Charlotte, NC (May 2014)
20. Plant Protein Phosphorylation Symposium, Columbia, MO (May 2014)
21. Physiology Course, Marine Biological Labs, Woods Hole, MA (June 2014)
22. International Congress of Arabidopsis Research, Vancouver, BC (July 2014)
23. Gordon and Betty Moore Imaging Conference, Sausalito, CA (Dec 2014)
24. Janelia Conference on Force-Gated Ion Channels, Ashburn, VA (March, 2015)
25. Gordon Research Conference on Organellar Channels & Transporters, Waltham, MA (June 2015)
26. Woods Hole Physiology Course, Marine Biological Labs (July 2015)
27. ASCB, Lightning Talk in Motility and Cytoskeleton of Microbes Minisymposium (Dec 2015)
28. NorPlant Biology 2016, Trondheim, Norway (June 2016)
29. ASPB “Reproductive Biology” Minisymposium, Austin, TX (July 2016)
30. HHMI Faculty Scholars Meeting, Chevy Chase, MD (Nov 2016)
31. Biophysical Society, New Orleans (Feb 2017)
32. WUSTL Mechanobiology Training Grant Retreat Keynote Speaker (June 2017)
33. Copenhagen Plant Science Center Lecture, University of Copenhagen, Denmark (June 2017)
34. FASEB Mechanisms in Plant Development, Vermont (Aug 2017)
35. 2nd Workshop on Plant Development and Drought Stress, Asilomar, CA (Nov 2017)
36. Zurich-Basel Plant Science Symposium (Nov 2017)

#### **Department Seminars**

1. Seattle Area Model Plant Labs, Seattle, WA (August 2006)
2. Department of Biological Sciences, Columbia University, NY (December 2006)
3. Center for Plant Cell Biology, UC Riverside, CA (July 2007)
4. Department of Genetics, WUSTL School of Medicine, St. Louis, MO (Nov 2007)
5. Department of Biology, University of Missouri, St. Louis, MO (March 2008)
6. Department of Biology, St. Louis University, St. Louis, MO (April 2008)
7. Interdisciplinary Plant Group, University of Missouri, Columbia, MO (Nov 2008)
8. Donald Danforth Plant Science Center, St. Louis, MO (December 2008)
9. Truman State University, Kirksville, MO (April 2009)
10. University of Wisconsin Botany Department (informal seminar), Madison (May 2009)
11. Department of Horticulture, Purdue, West Lafayette, IN (October 2009)
12. Department of Biology, Southern Illinois University Edwardsville (October 2010)
13. Department of Plant Biology/PRL, Michigan State University (January 2011)
14. Department of Biochemistry, University of Kansas (April 2011)
15. Department of Microbiology, WUSTL School of Medicine, St. Louis, MO (Sept 2011)
16. Plant Molecular and Cell Biology, University of Florida, FL (February 2012)
17. Vanzant Biochemistry and Cell Biology Seminar Series, Rice University, TX (May 2012)
18. CBMG Program, University of Maryland, College Park, MD (Oct 2013)
19. Department of Biology, Indiana University, Bloomington, IN (Dec 2013)
20. Carnegie Institution for Science, Palo Alto, CA (April 2104)
21. Basic Sciences Division, Fred Hutchinson Cancer Research Center, Seattle, WA (June 2014)
22. Department of Biology, Penn State University, State College, PA (Oct 2014)
23. Department of Biology, MCSB Program, University of Massachusetts, Amherst, MA (Nov 2014)
24. Department of Biology, University of Washington (Jan 2015)
25. Molecular Biology Institute, UCLA (Feb 2015)
26. Plant Molecular and Physiological Biology Seminar Series, University of Illinois Champaign-Urbana (April 2015)
27. Section of Plant Biology, Cornell University (May 2015)
28. Biotechnology/Life Sciences Seminar Series, University of Nebraska, Lincoln, NE (Nov 2015)
29. University of Adelaide, Plant Research Lab, Australia (Feb 2016)
30. University of Western Australia, Plant Energy Biology Centre, Perth, Australia (Feb 2016)
31. Sainsbury Labs, Cambridge University, Cambridge, England (May, 2016)

32. Department Plant Sciences, Oxford University, Oxford, England (June 2016)
33. Donald Danforth Plant Sciences, Saint Louis, MO (August 2016)
34. Department of Molecular Biosciences, University of Texas at Austin (Sept 2016)
35. Department of Plant and Microbial Biology, UC Berkeley (Oct 2016)
36. Joint Seminars in Molecular Biology, UC Davis (March 2017)
37. School of Biological Science, Washington State University (April 2017)
38. Max Planck Plant Physiology (Dec 2017)
39. North Carolina Biotechnology Center Seminar Series (Feb 2018)
40. Stanford Frontiers in Quantitative Biology Seminar Series (April 2018)
41. Center for Plant Cell Biology, UC Riverside (May 2018)

## RESEARCH SUPPORT

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**HHMI Faculty Scholar Grant.** *Opening Ancient Doors: Mechanotransduction and Bioelectricity in Plants*

Haswell, PI

November 2016-2021

**NSF Science & Technology Center.** *Engineering Mechanobiology*

Shenoy, Center PI; Haswell, Subaward PI

Oct 2016-Sept 2021

**NSF CAREER MCB-1253103.** *The Function, Regulation, and Molecular Identity of Mechanosensitive Channels in Arabidopsis thaliana*

Haswell, PI.

Jan 2013-Dec 2017

Research Opportunity Award for Research in Undergraduate Institutions

July 2014-Dec 2014

**NSF Science and Technology Center Grant.** From Award 1548571 “Engineering Mechanobiology”. *Genetic and Mathematical Modeling Approaches to Understanding the Role of Mechanosensitive Ion Channels in Pollen.*

Haswell, PI; Carlsson, PI

Sept 2016-Aug 2018

## Past

**NIH 2R01GM084211-5A1.** *Biophysical, Structural, and Functional Analysis of Mechanosensitive Channels*

Rees (Caltech), PI; Phillips (Caltech), and Haswell, co-PIs.

Sept 2013-Mar 2018

**Gordon and Betty Moore Foundation.** “Membrane Forces in Bacteria and Plants: from Basic Biophysics to Designer Organisms.”

Cohen (Harvard), PI and Haswell, co-PI.

July 2013-Sept 2017

**NASA NNX13AM55G.** “Mechanosensitive Channels in Plants: Genetic, Computational, and Systems-Levels Approaches to Understanding their Proposed Role in Gravity Perception.”

Haswell, PI, Spalding (U. Wisconsin, Madison) co-PI.

August 2013-July 2017

**I-CARES.** “A Multidisciplinary Approach to Understanding How the Biomechanical Properties of the Cell Membrane Contribute to Ozone Injury in Plants.”

Haswell, PI.

May 2012-April 2013

**NIH R01GM084211-01.** “Biophysical, Structural, and Functional Analysis of Mechanosensitive Channels.”

Rees, PI; Phillips and Haswell, co-PIs.  
Sept. 2008- Aug. 2012

**NIH R01GM084211-01. Administrative Supplement.**

Sept 2009-Sept 2011

**NIH R01GM084211-01. Interim Funding**

Sept 2012- Aug 2013

**NSF MCB-0816627. “Mechanosensitive Channels and Organelle Morphology.”**

Haswell, PI.

July 2008 - June 2011. No-cost extension to June 2012.

**Monsanto/Washington U. Plant Science Program. “Gene Discovery in Arabidopsis: Identifying and Characterizing Master Regulators of Plant Thigmomorphogenesis.”**

Haswell, PI.

Jan 2008 - Dec 2009. No cost extension to Dec. 2010.

## PROFESSIONAL SERVICE

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### National and International Leadership

- 2018- Co-Director, Multinational Arabidopsis Steering Committee (MASC)
- 2018- Director of Research, NSF Center for Engineering Mechanobiology
- 2018- AAAS Council, Delegate, Biological Sciences
- 2017- Member, NSF Center for Engineering Mechanobiology Steering Committee
- 2015- Member, North American Arabidopsis Steering Committee (NAASC)
- 2016-17 Member, Plantae Steering Committee

### Grant Panelist

- 2015 National Science Foundation MCB Review Panelist “Signal Transduction”
- 2014 National Science Foundation MCB Review Panelist for Career Proposals “Cellular Dynamics and Function”
- 2013 National Science Foundation MCB Review Panelist “Membrane Transport”
- 2010 National Science Foundation MCB Review Panelist “Cell and Molecular Biology”

### Ad-hoc Grant Reviewer

- 2013 Research Grant Council of Taiwan
- 2013, 2015 WUSTL I-CARES
- 2013 European Research Area—Coordinating Action in Plant Sciences
- 2013 European Research Council
- 2011, 2012 University of Missouri Research Board
- 2008- present National Science Foundation, 13 grants to date

### Meeting Organizer/Session Chair

- 2018 Signal Transduction Session Chair, Int’l Conference on Arabidopsis Research
- 2017 Organizing Committee, Int’l Conference on Arabidopsis Research
- 2016 Minisymposium Chair “Reproductive Biology”, Plant Biology
- 2014 Cell Biology Session Chair, International Conference on Arabidopsis Research
- 2013 Minisymposium Organizer and Chair “Mechanotransduction”, Plant Biology
- 2013 Organizing Committee, Midwest Society for Developmental Biology
- 2011 Minisymposium Chair “Organelle Biology”, Plant Biology

### Workshop Organizer

- 2018- NSF RCN Workshop “Arabidopsis Research & Training for the Next Generation”
- 2017-2019 NSF MCB Workshop “Finding Your Inner Modeler”
- 2006 Int’l Conference on Arabidopsis Research Workshop “Mechanotransduction in Arabidopsis”

**Editor**

- 2017- Reviewing Editor, *The Plant Cell*
- 2017 Guest Editor, *Current Opinion in Plant Biology*, Cell Biology Section
- 2015-2016 Guest Editor, *The Plant Cell*

**Ad-Hoc Journal Reviewer**

2007-present: Approximately two manuscripts per month in: *Science* • *Nature Communications* • *Current Biology* • *The Plant Cell* • *PNAS* • *PLoS Genetics* • *Biophysical Journal* • *Molecular Plant* • *Scientific Reports* • *Science Signaling* • *Plant Physiology* • *Biochemical Journal* • *Journal of Bacteriology* • *Plant Journal* • *Molecular Biology of the Cell* • *Journal of Cell Science* • *Frontiers in Plant Science* • *Photochemistry and Photobiology* • *Trends in Cell Biology* • *Journal of Experimental Botany* • *PLoS ONE* • *Plant Biology* • *New Phytologist* • *Oecologia* • *Journal of Integrative Plant Biology* • *American Journal of Botany*

**Workshop Panelist**

- 2014 Soil-Water-Plant Summit at Tyson
- 2012 Department of Energy Workshop “Cell Cycle and Rhythms”
- 2009 Department of Energy Workshop “New Frontiers in Characterizing Biological Systems”

**MENTORING and ADVOCACY**

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**Training**

- 2017 Witnessing Whiteness
- 2017 Inclusion and Diversity to Engage All, WUSTL Faculty Institute on Teaching
- 2015 Women Faculty Leadership Institute, WUSTL
- 2007 Laboratory Leadership Workshop, American Society of Plant Biologists

**Mentoring**

- 2017- Faculty Mentor for PMB graduate student mental health “tune-up” series
- 2014-15 Small Group Mentor, WUSTL Fellowship Writing Workshop
- 2014 URM Mentor, NSF RCN “Arabidopsis Research & Training for the Next Generation”
- 2012 WUSTL Mentor Connections Participant
- 2011-2014 DBBS Women Graduate Student Mentor

**Committees**

- 2003-4 Caltech Women Mentoring Women Advisory Committee
- 2001-3 Founder and Chair of Caltech Postdoc Association
- 1998-99 Chair of Women’s Advocacy, UCSF Graduate Student Council
- 1995-2000 Organizing Member, UCSF Women in Life Sciences

**Panelist/Presentations**

- 2018 ICAR 2018 Science Communications Workshop, Panelist
- 2016 NorPlantBio 2016 Career Discussion Panelist
- 2015 WUSTL iGEM Genetic Engineering: Shades of Grey Panelist
- 2013 NSF CAREER Award Discussion Panelist, School of Engineering
- 2011 DBBS Graduate Student Seminar on Professional Development
- 2010 American Society of Plant Biologists Career Workshop “Getting the Most out of Graduate School”
- 2009 DBBS Panel on Graduate Student Rotations
- 2009 Career Development Series Speaker, Danforth Society of Fellows

**Other Contributions**

- 2015 Poster Judge, ASPB Midwestern Section Annual Meeting, St. Louis, MO



DEPARTMENT and UNIVERSITY SERVICE

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**Formal Committees**

SP 2018	WUSTL Affirmative Action Monitoring Committee
2018 –	WUSTL Standing Committee on Work/Life Balance
2018 –	Stalker Award Committee Chair
2017-	WUSTL Teaching and Learning Systems (Domain) Steering Committee
2017-	WUSTL Student Conduct Board
2017-	Faculty Advisory Committee to the Biology Chair
2015-	Plant and Microbial Biology Graduate Program Steering Committee
2015-	Executive Committee, Mechanobiology Graduate Training Grant
2016-2017	Biophysics Faculty Search Committee, Physics Department
2016-2017	Vice-Dean for DBBS Search Committee, DBBS
2013	WUSTL Library Deaccessioning Task Force
2012-13	Prokaryotic Biology Search Committee
2010-11	Plant Biology Faculty Search Committee
2007-08	Biochemistry Faculty Search Committee, Chemistry Department
2007-08	Plant Biology Graduate Program Admissions Committee

**Other Contributions**

2017-	Biology Department Seminar Series Overhaul & Organization
2009-	Biology Program Undergraduate Advisor
2014	Mentor, DBBS Graduate Fellowship Writing Workshop
2014	Arts and Sciences Student Orientation Participant
2013	Plant and Microbial Biosciences Planning
2013	Plant and Microbial Biosciences Website Design
2013	Plant Biology Graduate Program Advising
2013	WUSTL HHMI Travel Award Poster Judge
2012	Update Plant Program Brochure
2011	Biology Major Assessment, Interviewer
2010	Biology Curriculum Implementation
2010	HHMI Teaching Advisory Committee
2009	Graduate Students Ethics Course, Facilitator
2009-2013	Plant Biology Program Retreat, Organizer
2009	Biology Department Website Overhaul

**COURSES TAUGHT**

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**Coursemaster**

2017-2018	Bio3041 Plant Biology and Genetic Engineering
2016-2017	Bio3041 Plant Biology and Genetic Engineering
2015-2016	Sabbatical
2014-2015	Bio3041 Plant Biology and Genetic Engineering
2013-2014	Bio3041 Plant Biology and Genetic Engineering Bio4025 Current Approaches in Plant and Microbial Research
2012-2013	Bio4028 Seed to Senescence: The Genetics, Cell Biology, and Development of Plants Bio3041 Plant Biology and Genetic Engineering

2011-2012

Bio493 Original Biological Research and Methods  
Bio3041 Plant Biology and Genetic Engineering

2010-2011

Bio4028 Seed to Senescence: The Genetics, Cell Biology, and Development of Plants  
Bio572 Plant Biology Journal Club

2009-2010

Bio4028 Seed to Senescence: The Genetics, Cell Biology, and Development of Plants

2008-2009

Bio4028 Seed to Senescence: The Genetics, Cell Biology, and Development of Plants  
Bio572 Plant Biology Journal Club

### Guest Lecturer/Project Leader

FL2014 Bio1810 Freshman Seminar in Imaging Sciences  
Summer 2014, 2015 MBL Physiology Course, Woods Hole  
FL2011 Be262 Physical and Synthetic Biology Bootcamp (at Caltech)  
SP2008, SP12, SP13 Bio572 Plant Biology Journal Club  
SP2008, SP09, SP11 Bio5491 Advanced Genetics

### TRAINING

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#### Postdoctoral Scientists

Dr. Yanbing Wang (2016-present) • Dr. Ivan Radin (2016- present) • Dr. Debarati Basu (2015-present) • Dr. Yizhou Wang (2017) • Dr. Eric Schultz (2016-2017) • Dr. Grigory Maksaev (2010-2017) • Dr. Wendy Huang-Verslues (2014-2015) • Dr. Maggie Wilson (2014-2016) • Dr. Kira Velez (2010-2015) • Dr. Ellen Martin-Tryon (2008-2009)

#### Graduate Students

Kari Miller, *Plant and Microbial Biology* (2018-present) • Jennette Shoots, *Plant and Microbial Biology* (2017-present) • Angela Schlegel, *Plant and Microbial Biology* (2014-present) • Eric Hamilton, *Plant Biology* (2013-2017) • Margaret Wilson, *Plant Biology* (2009-2013) • Silvano Ciani, *Plant Biology* (2008-2011, Masters)

**Rotation Students:** • Natasha Bilkey, *Plant and Microbial Biology* (Fall 2017) • Maria Sorkin, *Plant and Microbial Biology* (Fall 2016) • Elizabeth Frick, *Plant Biology* (Spring 2013) • Ashley Muehler, *Plant Biology* (Spring 2012) • Jeremy King, *Cell Biology* (Summer 2009) • Brian San Francisco, *Plant Biology* (Fall 2008) • Scott Higdon, *Developmental Biology* (Summer 2008) • Caitlin Ramsey, *Plant Biology* (Spring 2008) • Rachel Schwope, *Molecular Genetics and Genomics* (Spring 2008)

**Graduate Student Thesis Committees:** Taylor Paret (2018-present), *Environmental Science Masters Program, Toledo University* • Sarah Rommelfanger (2017-present), *Plant and Microbial Biology* • Jonah Scher-Zagier (2016-present), *Physics* • Elizabeth Frick (2014-2017), *Plant and Microbial Biology* • Michelle Harris (2014)\*\*, *Chemistry* • Henry Priest (2013-2016), *Plant and Microbial Biology* • Cheryl Immethun (2013-present), *Chemical Engineering* • Matthew Kilgore (2012-2015), *Plant Biology* • Hannah Malcolm (2012)\*\*, *Chemistry* • Heidi Arjes (2011-2014), *Microbiology and Microbial Pathogenesis* • Chuanmei Chu (2010-2014), *Plant Biology* • Brian San Francisco (2010-2013), *Plant Biology*\* • Agnes Demianski (2009-2011), *Plant Biology* • Bisco Hill (2009-2013), *Microbiology and Microbial Pathogenesis* • Andrew Mutka (2009-2013), *Plant Biology* • Matthew Rea (2010-2013), *Biology, SLU* • Wei-Tien (2009)\*\*, *U College Masters Program* • Sebastian Lourido (2009-12), *Molecular Microbiology and Microbial Pathogenesis* • Amy Szumlanski (2008-09), *Plant Biology* • Ian Street (2007), *Plant Biology*\*\*

\*Chair, \*\*Defense only

**Graduate Student Qualifying Exam Committees:** Patricia Walker (2018) • Maria Sorkin (2018) • Sarah Rommelfanger (2017), *Plant and Microbial Biology* • Po Cheng (2015), *Plant and Microbial Biology* • Tara Enders (2013), *Plant Biology* • Abby Mapes (2012), *Microbiology* • David Korasick

(2012), *Plant Biology* • Matthew Kilgore (2012), *Plant Biology* • Jeremy King (2011), *Plant Biology* • Matthew Rea (2010), *Biology*, SLU • Wan Shi (2009), *Plant Biology* • Ashley Galant (2008), *Plant Biology*

### **Technicians and Salaried Employees**

Ryan Richardson (2015-present) • Matthew Mixdorf (2014-2017) • Emma January (2013-2015) • Gregory Jensen (2007-2010, 2012-2015) • Kelsey Kropp (2013-2014) • Katherine Shortt (2011-2012) • Sarah Marshburn (2011) • Anupama Vijayaraghavan (2009-2010) • Madalyn Fleisler (2007-2008)

### **Undergraduates**

**Research:** Ethan Weiner (SP2018-) • Matt Geer (Summer 2017-FL17) • Simran Ohri (Summer 2017-FL17) • Sadie VanHorn, Amgen Scholar (Summer 2017) • Srishti Kapur (SP17) • Liam Joyce (Summer 2016) • Josephine Lee, ASPB SURF (SP14-FL15, FL16) • Sarah Kloepper, WUSTL SURF (SP13-14) • Meera Basu, WUSTL SURF (Summer 2012, FL12-SP14) • Hyunu Ray Kim (SP12-Summer 2012) • Andrew Katims, Stalker Prize Winner (FL11-Summer 2012) • Cara Clure (FL07-SP10) • Kelly Meuthing, Summer Scholar (2010) • Dylan Cockson (FL09) • Vivien Goh, Summer Scholar (2009)

**Lab Assistants:** Daniel McLean (FL16-present) • Rachel Eddy (FL15-SP16) • Samantha Embrick (FL13-SP15) • Brandon Eng (SP13) • Paul Micevych (FL12) • Meghan Lam (SP12) • David Xiong (FL10) • Michael Benefiel (FL08-SP11) • Chan Lee (SP08)

### **Visiting Scientists**

Paul Verslues, Freiburg Professor (Fall 2014/Spring 2015) • Darron Luesse, Sabbatical (Summer/Fall 2014) • Kevin Hall, St. Louis high school teacher (Summer 2010) • Stephanie Johnson, Ph.D. candidate at California Institute of Technology (SP08)

### **UNDERGRADUATE THESES**

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Cara Clure “Mechanosensitive channels interact with starch metabolism to control the osmotic sensitivity of plastids in *Arabidopsis thaliana*.” Spring 2010

Sarah Kloepper “A Study in Green: Phosphorylation-dependent Cell Death and the N-terminus of MSL10.” Spring 2014

Meera Basu “Exploring the contribution of plastid stress to plant cell osmoregulation and identifying the subcellular localization of MSL2 N-terminal splice variants.” Spring 2014

Josephine Lee “Organelle-organelle communication in plant growth and development.” Fall 2016