CURRICULUM VITAE

Name Mark A. Johnson
Associate Professor
Director of Graduate Studies, Molecular Biology, Cell Biology, and Biochemistry Graduate Program
HHMI-Brown Undergraduate Educcation Program Director
Brown University, Providence, RI
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Education

1993 B.S. Biology, Wake Forest University, Winston-Salem, NC

2000 Ph.D. Microbiology and Cellular and Molecular Biology
Michigan State University, East Lansing, MI
Dissertation title: Genetic determinants of mRNA stability in plants.
Advisor: Pamela J. Green, Ph.D.

2000-2004 Postdoctoral Fellow. The Howard Hughes Medical Institute
Department of Molecular Genetics and Cell Biology
The University of Chicago, Chicago, Il
Research topic: Genetic analysis of plant reproduction
Advisor: Daphne Preuss, Ph.D.

4. Professional Appointments

2004-2010 Assistant Professor of Biology, Department of Molecular Biology, Cell Biology, and Biochemistry, Brown University

2010-Present Associate Professor of Biology, Department of Molecular Biology, Cell Biology, and Biochemistry, Brown University

5. Selected Publications

a. Chapters in Books

Kastenmayer JP, van Hoof A, **Johnson MA,** Green PJ (1998) mRNA Decay Machinery in Plants: Approaches and Potential Components. *In* N Raikhel, RL Last, G Morelli, F LaShavo, eds, Plant Molecular Biology, Vol 104. Springer-Verlag, Berlin, pp 125 - 133

Johnson MA, Baker EJ, Colbert JT, Green PJ (1998) Determinants of mRNA stability in plants. *In* J Bailey-Serres, D Gallie, eds, A look beyond transcription: Mechanisms determining mRNA stability and translation in plants. American Society of Plant Physiologists, Rockville, pp 40-53

Johnson MA and Lord EM (2006) Extracellular Guidance Cues and Intracellular Signaling Pathways that Direct Pollen Tube Growth. *In* R Malho, ed, The Pollen Tube: A cellular and molecular perspective, Vol 3. Springer, Heidelberg, pp 223-242

Johnson MA, Kost B (2010) Pollen tube development. Methods Mol Biol. 655:155-76.

b. Refereed Journal Articles

Johnson MA, Perez-Amador MA, Lidder P, Green PJ (2000) Mutants of Arabidopsis defective in a sequence-specific mRNA degradation pathway. Proc Natl Acad Sci U S A 97: 13991-13996

Perez-Amador MA, Lidder P, **Johnson MA**, Landgraf J, Wisman E, Green PJ (2001) New Molecular Phenotypes in the dst Mutants of Arabidopsis Revealed by DNA Microarray Analysis. Plant Cell 13: 2703-2717.

Johnson MA, Preuss D (2002) Plotting a course: multiple signals guide pollen tubes to their targets. Dev Cell 2: 273-281

Chiba Y, **Johnson MA**, Lidder P, Vogel JT, van Erp H, Green PJ (2004) AtPARN is an essential poly(A) ribonuclease in Arabidopsis. Gene 328: 95-102

Johnson MA, von Besser K, Zhou Q, Smith E, Aux G, Patton D, Levin JZ, Preuss D (2004) Arabidopsis *hapless* mutations define essential gametophytic functions. Genetics 168: 971-982

von Besser K, Frank AC, **Johnson MA**, Preuss D (2006) Arabidopsis HAP2 (GCS1) is a sperm-specific gene required for pollen tube guidance and fertilization. Development 133: 4761-4769

Qin Y, Leydon AR, Manziello A, Pandey R, Mount D, Denic S, Vasic B, **Johnson MA**, Palanivelu R (2009) Penetration of the stigma and style elicits a novel transcriptome in pollen tubes, pointing to genes critical for growth in a pistil. PLoS Genet 5: e1000621

Frank AC and **Johnson MA** (2009) Expressing the diphtheria toxin A subunit from the HAP2(GCS1) promoter blocks sperm maturation and produces single sperm-like cells capable of fertilization. Plant Physiol. 2009 Nov;151(3):1390-400.

Wong JL, **Johnson MA** (2010) Is HAP2-GCS1 an ancestral gamete fusogen? Trends Cell Biol. Mar;20(3):134-41.

Wong JL, Leydon AR, **Johnson MA** (2010) HAP2(GCS1)-dependent gamete fusion requires a positively charged carboxy-terminal domain. PLoS Genet. Mar 19;6(3):e1000882.

Lu Y, Chanroj S, Zulkifli L, Johnson MA, Uozumi N, Cheung A, Sze H (2011). Pollen Tubes Lacking a Pair of K+ Transporters Fail to Target Ovules in Arabidopsis. Plant Cell. Jan;23(1):81-93

Qin Y, Wysocki RJ, Somogyi A, Feinstein Y, Franco JY, Tsukamoto T, Dunatunga D, **Levy C, Smith S, Simpson R, Gang D, Johnson MA, Palanivelu R. (2011) Sulfinylated azadecalins act as functional mimics of a pollen germination stimulant in Arabidopsis pistils. Plant J. Dec;68(5):800-15.

Beale KB, Leydon AR, Johnson MA (2012) Gamete fusion is required to block multiple pollen tubes from entering an Arabidopsis ovule. *Current Biology*. Jun 19;22(12):1090-4. doi: 10.1016/j.cub.2012.04.041. Epub 2012 May 17.

Leydon AR, Beale KM, **Woroniecka K, **Castner E, **Chen J, **Horgan C, Palanivelu R, Johnson MA (2013) Three MYB Transcription Factors Control Pollen Tube Differentiation Required for Sperm Release. *Curr Biol.* 2013 Jul 8;23(13):1209-14.10.1016/j.cub.2013.05.021. PMID: 23791732

Beale KM, Johnson MA (2013) Speed dating, rejection, and finding the perfect mate: advice from flowering plants. Curr Opin Plant Biol. 2013 Oct;16(5):590-7. PMID: 24021868

Leydon AR, Johnson MA (2013) Preparing for explosion: Pollen tubes are capacitated by the pistil. Mol Reprod Dev. 2013 Jun; 80(6):427.

Leydon AR, Johnson MA (2014) Defects in pollen-tube differentiation prevent fertilization. Mol Reprod Dev. 2014 Jan;81(1):1. doi: 10.1002/mrd.22296. PMID: 24375811

**Hartman E, **Levy C, **Kern DM, Johnson MA, Basu A. A rapid, inexpensive, and semiquantitative method for determining pollen tube extension using fluorescence. Plant Methods. 2014 Jan 23;10(1):3. [Epub ahead of print] PMID: 24456640

Leydon AR, **Chaibang A, Johnson MA. Interactions between pollen tube and pistil control pollen tube identity and sperm release in the Arabidopsis female gametophyte. Biochem Soc Trans. 2014 Apr;42(2):340-5. doi: 10.1042/BST20130223

Leydon AR, Tsukamoto T, Dunatunga D, Qin Y, Johnson MA, Palanivelu R. Pollen Tube Discharge Completes the Process of Synergid Degeneration That Is Initiated by Pollen

Tube-Synergid Interaction in Arabidopsis. Plant Physiology. 2015; 169 (1) : 485-96. PMID: 26229050 [PubMed - in process] PMCID: PMC4577395

Padmanaban, S; Czerny, DD; Levin, KA; Leydon, AR; Su, RT; Maugel, TK; Zou, Y; Chanroj, S; Cheung, AY; Johnson, MA; Sze, H. Transporters involved in pH and K+ homeostasis affect pollen wall formation, male fertility, and embryo development. Journal of Experimental Botany. 2017. epub date 2/23/2017, DOI: 10.1093/jxb/erw483

Leydon AR, **Weinreb C, **Venable E, Reinders A, Ward JM, Johnson MA. The Molecular Dialog between Flowering Plant Reproductive Partners Defined by SNP-Informed RNA-Sequencing. Plant Cell. 2017 May;29(5):984-1006. doi: 10.1105/tpc.16.00816.

** Peer-reviewed publications by Brown University Undergraduates

c. Non-refereed Journal Articles

Johnson MA and Preuss D (2003) On your mark, get set, GROW! LePRK2-LAT52 interactions regulate pollen tube growth. Trends Plant Sci 8: 97-99

Lidder P, **Johnson MA**, Sullivan ML, Thompson DM, Perez-Amador MA, Howard CJ, Green PJ (2004) Genetics of the DST-mediated mRNA decay pathway using a transgene-based selection. Biochem Soc Trans 32: 575-577

Johnson MA and Bender J (2009) Reprogramming the epigenome during germline and seed development. Genome Biol 10: 232

Palanivelu R, **Johnson MA** (2010) Functional genomics of pollen tube-pistil interactions in Arabidopsis. Biochem Soc Trans. Apr;38(2):593-7.

Johnson MA (2010) Fertilization: monogamy by mutually assured destruction. *Current Biology*. Jul 13;20(13):R571-3

Johnson MA (2012) Plant Reproduction: Teaching a New Language of Love. *Current Biology*. Jul 10;22(13):R528-9. doi: 10.1016/j.cub.2012.06.003.

Dresselhaus T, **Johnson MA.** (2018) Reproduction: Plant Parentage à Trois. *Current Biology*. Jan 8;28(1):R28-R30. doi: 10.1016/j.cub.2017.11.041.

d. Abstracts

1997 Johnson MA, Perez-Amador M, Sullivan ML, Thompson DM, and Green, PJ. Progress Toward Isolation of Arabidopsis Mutants Defective in Control of AUUUA- and

DST-Mediated mRNA Instability. Fifth International Congress of Plant Molecular Biology. Singapore.

Johnson MA, Perez-Amador M, Sullivan ML, Thompson DM, and Green, PJ. Progress Toward Isolation of Arabidopsis Mutants Defective in Control of AUUUA- and DST-Mediated mRNA Instability. Eighth International Conference on Arabidopsis Research, Madison, WI.

Johnson MA, Perez-Amador M, Sullivan ML, Thompson DM, and Green, PJ. American Society of Plant Physiologists 19th Annual Symposium in Plant Physiology. Progress Toward Isolation of Arabidopsis Mutants Defective in Control of AUUUA- and DST-Mediated mRNA Instability. A Look Beyond Transcription: Mechanisms Determining mRNA stability and Translation in Plants, University of California, Riverside.

1999 Johnson MA, Perez-Amador M, Lidder P, Green PJ. Mutants of Arabidopsis Defective in DST-Mediated mRNA degradation. Michigan RNA Society. University of Michigan, Ann Arbor, MI.

2000 Johnson MA, Vogel J, Green PJ. Cloning and initial characterization of AtPARN, an Arabidopsis homolog of a human poly(A) ribonuclease. Eleventh International Conference on Arabidopsis Research, Madison, WI.

2002 Johnson MA, Zhou Q, Levin J, Preuss D. *hapless1* mutants display aberrant pollen tube growth and lack a protein similar to *mago nashi*, a *Drosophila* gene required for cell polarity. Plant Reproduction 2002, Pennsylvania State University.

Johnson MA, Zhou Q, Levin J, Preuss D. *hapless* mutants display aberrant pollen tube growth and lack a protein similar to *mago nashi*, a *Drosophila* gene required for cell polarity. FASEB Summer Research Conferences: Mechanisms in Plant Development at Vermont Academy, Saxons River, VT.

2003 Johnson MA, von Besser K, Zhou Q, Smith E, Aux G, Patton J, Levin J, Preuss D. Toward functional genomics of Arabidopsis Gametophytes. 14th International Conference on Arabidopsis Research, Madison, WI.

2004 Johnson MA. *Arabidopsis Mago Nashi* is required for pollen tube growth and guidance. Frontiers in Sexual Plant Reproduction II. Albany, NY, October 15-17

2005 Johnson MA, Moore A, Preuss D. *Arabidopsis Mago Nashi* is required for pollen tube growth and guidance. FASEB Summer Research Conference on Intracellular RNA Sorting, Transport, and Localization. Tucson, AZ. June 25-30

2006 Moore A, Preuss D, Johnson MA. *Arabidopsis Mago Nashi* is required for pollen tube growth and guidance. 16th Penn State Plant Physiology Symposium. RNA Biology: Novel Insights from Plant Systems. May 18-20.

2007 Frank AC and Johnson MA. Expression of a male germ line-specific translation inhibitor to dissect sperm differentiation and seed development in flowering plants. Gordon Research Conference, Fertilization & Activation Of Development, Holderness School, Holderness, NH, July 15-20.

Frank AC**,** von Besser K, Wong JL, Chaibang A, Heyward K, Preuss D, and Johnson MA. *Arabidopsis HAP2* (GCS1) is sperm-specific, required for pollen tube guidance, and essential for fertilization. American Society of Plant Biology Annual Meeting. Chicago, IL, July 7-11

Chaibang A and Johnson MA. Are pollen tube guidance signals species specific? American Society of Plant Biology Annual Meeting. Chicago, IL, July 7-11

2008 Frank AC and Johnson MA. Expression of a translation inhibitor in the Arabidopsis generative cell produces single germ cells that preferentially target the central cell. Frontiers in Sexual Plant Reproduction III. Tucson, AZ, October 17-19.
Note: Aubrey Frank, my Ph.D. student, won second prize in an NSF-sponsored poster competition for graduate students and post-docs at this international meeting.

Leydon, AR and Johnson MA. *HAPLESS* mutations affecting sperm development and the paternal contribution to embryogenesis. Frontiers in Sexual Plant Reproduction III. Tucson, AZ, October 17-19.

2009 Wong JL, Frank AC, Chang A, Leydon AR, and Johnson MA. *HAP2(GCS1)* is a Sperm-Expressed Component of a Deeply Conserved Fertilization Mechanism. American Society of Plant Biology Annual Meeting. Honolulu, HI, July 18-22

Kern DM*, Wright LD, Becker JP, Song S, Rossi LL, Qin Y, Palanivelu R, Basu A, and Johnson MA. Chemical genetic analysis of pollen tube glycobiology: β-galactosidases are essential for penetration of the pistil. American Society of Plant Biology Annual Meeting. Honolulu, HI, July 18-22 **Brown University Undergraduate Presenter*

2011 Gamete plasma membrane fusion triggers a block to polytubey in Arabidopsis thaliana. Kristin Beale and Mark Johnson. Northeast Society for Developmental Biology annual meeting. March 25-27

Alexander Leydon*, Ravishankar Palanivelu2, Mark Johnson. Identifying transcriptional regulators essential for capacitating pollen tube growth and guidance. Northeast Society for Developmental Biology annual meeting. March 25-27

Alexander R. Leydon, Clare Levy, Sophia Wang, David M. Kern, Laurel D. Wright, Emily Hartman, Spencer Clark, Amit Basu, Mark A. Johnson. A pair of pollen-specific β-galactosidases are essential for pollen tube growth. American Society of Plant Biology Annual Meeting. Minneapolis, Mn, August 6-10

Alexander Leydon, Ravishankar Palanivelu, Mark Johnson. Identifying transcriptional regulators essential for capacitating pollen tube growth and guidance. National Science Foundation Research Collaborative Network: Symposium on Pollen Systems Biology. Minneapolis, Mn, August 4-5

2012 Alexander Leydon, Ravishankar Palanivelu, Mark Johnson. A family of pollen tube-expressed transcription factors is essential for pollen tube reception. Plant Reproduction For Food, International congress on Sexual Plant Reproduction. Melbourne, Australia, 13-17 February.

Beale KM, Leydon AR, Johnson MA. The Arabidopsis block to polytubey is initiated by gamete fusion. Plant Reproduction For Food, International congress on Sexual Plant Reproduction. Melbourne, Australia, 13-17 February.

2014 Alexander R Leydon, Yue Zhang, Mark A Johnson. "Untangling pollen tube and pistil gene expression using SNP-informed deep sequencing". 23rd International Congress on Sexual Plant Reproduction. Porto, Pt. 13th to 18th July 2014

Jennifer Forcina, Kristin Beale, Anisa Khadraoui, Alexander Leydon, and Mark Johnson. "A genetic approach to identify novel components of gamete fusion mechanisms in Arabidopsis." 23rd International Congress on Sexual Plant Reproduction. Porto, Pt. 13th to 18th July 2014

2015 Jennifer Forcina, Kristin Beale, Anisa Khadraoui, Alexander R. Leydon, and Mark A. Johnson. Defining the Function of HAP2(GCS1) in Arabidopsis. Gordon Research Conference: Fertilization & Activation of Development. Holderness, NH, USA. July 19-24, 2015. Poster presentation (JF).

Mark A. Johnson. ERA-CAPS: Evolution Reproduction in Plants (EvoRepro). Annual PGRP NSF PI Meeting. September 10 - 11, 2015. Arlington, VA . Poster presentation (MJ).

2016 Jennifer Forcina, Kristin Beale, Samyukta Mallick, and Mark A. Johnson. Is HAP2(GCS1) the only DUO1-regulated gene required for gamete fusion? 24th International Congress on Sexual Plant Reproduction. Tucson, Arizona, USA, March 18-23, 2016. Poster presentation.

Alexander Leydon, Elena Venable, Caleb Weinreb, Alicia Sivitz, Anke Reinders, John Ward, Mark Johnson. SNP-informed RNA-sequencing identifies pollen-specific secreted

proteins that coordinate pollen tube reception. 24th International Congress on Sexual Plant Reproduction. Tucson, Arizona, USA, March 18-23, 2016. Award-winning invited talk for Alexander Leydon.

Jennifer Forcina, Kristin Beale and Mark A. Johnson. Gamete fusion requires a domain in HAP2(GCS1) with predicted structural similarity to viral fusion proteins. EMBO Workshop: Membrane Fusion in Health and Disease. Paris, France. June 20-24, 2016. Invited talk.

e. Invited Lectures

2003 The University of California-Riverside, Department of Botany and Plant Pathology and Center for Plant Cell Biology. Pollen tube genetics: Growth, guidance and polarity determination of a single plant cell.

2004 The University of Rochester, Department of Biology. Pollen tube genetics: Growth, guidance and polarity determination of a single plant cell.

Brown University Department of Molecular Biology, Cell Biology, and Biochemistry. Pollen tube genetics: Growth, guidance and polarity determination of a single plant cell.

The University of Missouri-Columbia, Department of Biology. Pollen tube genetics: Growth, guidance and polarity determination of a single plant cell.

Washington University, St. Louis, Department of Biology. Pollen tube genetics: Growth, guidance and polarity determination of a single plant cell.

New York University, Department of Biology. Pollen tube genetics: Growth, guidance and polarity determination of a single plant cell.

The University of Utah, Biology Department. Pollen tube genetics: Growth, guidance and polarity determination of a single plant cell.

The University of Colorado, Department of Molecular, Cellular, and Developmental Biology. Pollen tube genetics: Growth, guidance and polarity determination of a single plant cell.

The College of William and Mary, Biology Department. Pollen tube genetics: Growth, guidance and polarity determination of a single plant cell.

2005 The University of New Hampshire, Plant Biology and Genetics Departments. Pollen tube genetics: Growth, guidance and polarity determination of a single plant cell. February 17.

Cornell University, Plant Biology Department. Pollen tube genetics: Growth, guidance and polarity determination of a single plant cell. March 4.

MCB Department Seminar, Brown University. *Hapless* in Providence: Genetic analysis of targeted cell growth using Arabidopsis pollen tubes. March 24

2006 The University of Calgary, Biology Department. Pollen tube genetics: Growth, guidance and polarity determination of a single plant cell. March 31.

LMM/CGP Seminar Series, Brown University. Genetic analysis of pollen, a three-celled gamete delivery machine. September 25.

2007 Delaware Biotechnology Institute, The University of Delaware. Genetic analysis of pollen, a three-celled gamete delivery machine. November 19.

Rhode Island College, Biology Department. Genetic analysis of pollen, a three-celled gamete delivery machine. November 28.

2008 University of Massachusetts, Plant Biology Graduate Program. Genetic analysis of pollen, a three-celled gamete delivery machine. January 31.

Rutgers University, Waksman Institute. Genetic analysis of pollen, a three-celled gamete delivery machine. April 29.

University of Massachusetts-Boston, Department of Biology. Genetic analysis of pollen, a three-celled gamete delivery machine. October 10.

Spelman College, Department of Biology. Genetic analysis of pollen, The fastest cell on earth. November 12.

2011 Middlebury College, Department of Biology. Molecular Eavesdropping: Pollen-Pistil Dialogues. December 9

2012 CSIRO Plant Industry/Australia National University, Genetic analysis of pollen, a three-celled gamete delivery machine, March 21

University of Melbourne, School of Botany and Genetics Department, Genetic analysis of pollen, a three-celled gamete delivery machine, March 28

University of Minnesota, Plant Biology Colloquium, Genetic analysis of pollen: a three-celled gamete delivery machine. April 24th

University of Regensburg, Department Cell Biology and Plant Biochemistry, Molecular dialogues between pollen and pistil. July 2012

University of Duseldorf, Department of Microbiology, Molecular dialogues between pollen and pistil, July 2012.

University of Delaware, Delaware Biotechnology Institute, Molecular dialogues between pollen and pistil. October 12

Institute for Genetics and Developmental Biology, Beijing, Molecular dialogues between pollen and pistil, November 1

China Agriculture University, Molecular dialogues between pollen and pistil, November 1
Peking University, Molecular dialogues between pollen and pistil, November 1

National Institutes of Health, NIDDK Developmental Biology Seminar Series, November 15th

2013

University of Arizona, School of Plant Sciences, March 1, *Molecular dialogues between pollen and pistil*

Wake Forest University, Department of Biology, September 24, 2013, *Reproductive Mechanisms in Flowering Plants: Molecular Dialogues between Pollen and Pistil*

2014

Yale University Department of Molecular, Cellular and Developmental Biology, February 10, 2014, *Molecular Dialogues between Pollen and Pistil*

University of Toronto, Department of Cell and Systems Biology, March 28, 2014, *Molecular Dialogues between Pollen and Pistil*

Washington University in St. Louis, Department of Cell and Systems Biology, University of Toronto, April 7, 2014, *Molecular Dialogues between Pollen and Pistil*

Harvard University, Arnold Arboretum, April 14, 2014, *Molecular Dialogues between Pollen and Pistil*

2015 Stanford University, Carnegie Institute of Washington Department of Plant Biology, Friday January 20, 2015, *Molecular Dialogues between Pollen and Pistil*

2016 University of Missouri, Department of Biochemistry, April 8, 2016, *Molecular Dialogues between Pollen and Pistil*

Gregor Mendel Institute, Vienna, June 21, 2016. *Development of Tomato as model to study the Evolution of Reproduction.* Annual Evo-Repro collaborator meeting.

2017 Michigan State University, Department of Plant Biology, March 27, 2017, *Molecular Dialogues between Pollen and Pistil*

The University of Regensburg, Department of Plant Cell Biology, September 14, 2017. *The Evolution of Gamete Fusion.* Annual Evo-Repro collaborator meeting.

f. Papers Read (Invited Talks At Meetings)

1998 Sequence-Specific Degradation of Highly Unstable Transcripts.Gordon Research Conference. Plant Molecular Biology. New England College, Hennicker, New Hampshire. July 19-24.

Isolation of *Arabidopsis* Mutants Defective in DST-Mediated mRNA Instability. Michigan RNA Society. University of Michigan, Ann Arbor, MI. October 17.

1999 Genetic Analysis of DST-Mediated mRNA Degradation. Midwest Section of The American Society of Plant Physiologists. 45th Annual Meeting. Michigan State University, East Lansing, MI. March 19 - 20.

Genetic Analysis of DST-Mediated mRNA Degradation. Tenth International Conference on Arabidopsis Research. Melbourne, Australia. July 4 – 8.

2000 Mutants of Arabidopsis Defective in DST-Mediated mRNA degradation. Midwest Section of The American Society of Plant Physiologists. 46th Annual Meeting. Purdue University, West Lafayette, IN. March 17 - 18.

2001 Identification of Genes Essential for Pollen Tube Growth and Guidance. The University of Chicago Committee on Developmental Biology Retreat. The University of Chicago, Chicago, IL, December 14.

2002 The *hapless1* mutation causes aberrant pollen tube guidance and disrupts the *Arabidopsis* ortholog of *mago nashi*, a *Drosophila* cell polarity determinant. The University of

Chicago Department of Molecular Genetics and Cell Biology Annual Retreat. Lake Geneva, WI, October 18.

2003 The *hapless* screen: Genetic analysis of haploid-expressed genes required for gametophyte development and function. Conference on Plant Gametophytes. Ascona, Switzerland June 8-13.

2004 *HAPLESS* genes are essential for Arabidopsis pollen tube growth and guidance. Brown University, MCB Departmental Retreat. September 1, 2004

Pollen tube genetics: Growth, guidance and polarity determination of a single plant cell. New England Arabidopsis Meeting. The Whitehead Institute, MIT. Boston, MA, October 8.

Arabidopsis Mago Nashi is required for pollen tube growth and guidance. Frontiers in Sexual Plant Reproduction II. Albany, NY, October 15-17, 2004

2005 Pollen tube genetics: Growth, guidance and polarity determination of a single plant cell. University of Maryland Arabidopsis Symposium, College Park, MD, Saturday April 9.

Arabidopsis Mago Nashi is required for pollen tube growth and guidance. FASEB Summer Research Conference on Intracellular RNA Sorting, Transport, and Localization. Tucson, Az. June 25-30.

2006 *Arabidopsis Mago Nashi* is required for pollen tube growth and guidance. 16th Penn State Plant Symposium--RNA Biology: Novel Insights from Plant Systems. State College, PA May 18-20.

2007 *Arabidopsis HAP2* (GCS1) is sperm-specific, required for pollen tube guidance, and essential for fertilization. American Society of Plant Biology Annual Meeting. Chicago, IL, July 7-11

2008 HAP2 is a sperm-expressed component of a deeply conserved fertilization mechanisms. Frontiers in Sexual Plant Reproduction III. Tucson, AZ, October 17-19.

2009 Genetic analysis of pollen, a three-celled gamete delivery machine. Julian L. Wong, Aubrey C. Frank, Alexander Chang, Alexander R. Leydon, Mark A. Johnson. Northeast Society of Developmental Biology Meeting, Woods Hole, MA, April 24-26.

HAP2(GCS1) is a Sperm-Expressed Component of a Deeply Conserved Fertilization Mechanism. Julian L. Wong, Aubrey C. Frank, Alexander Chang, Alexander R. Leydon, Mark A. Johnson. American Society of Plant Biology Annual Meeting. Honolulu, HI, July 18-22

2011 Molecular genetic analysis of gamete fusion in Arabidopsis. Kristin Beale, Julian L. Wong, Alexander R. Leydon, Mark A. Johnson. Gordon Fertilization & Activation of Development: Next Horizons for Gamete Biology. July 17-22, 2011 Holderness School Holderness, NH

2012 Molecular dialogues between pollen and pistil. Plenary Session Speaker, Plant Reproduction For Food, International congress on Sexual Plant Reproduction. Melbourne, Australia, 13-17 February.

Molecular dialogues between pollen and pistil. European Union Cooperation in Science and Technology: Harnessing Plant Reproduction for crop improvement, Porto, 9th to 11th July 2012. External Plenary Speaker

Pollen Biology International Symposium "Frontiers in Pollen Tube Biology" Shanghai Institute of Plant Physiology and Ecology in Shanghai, China, on October 27th and 28th, 2012.

Pollen Biology International Workshop Shanghai Institute of Plant Physiology and Ecology in Shanghai, China, on October 28-31, 2012.

2013 Annual Meeting of the American Society of Plant Biology, July 20-24, 2013. Providence, RI. Gamete fusion initiates a mechanism that prevents multiple pollen tubes from entering an ovule

Biochemical Society focus meeting: 'Regulation of Fertilisation and early Seed Development' - 11-13 September, Bath, UK. Molecular Dialogues Between Pollen and Pistil: Gamete fusion regulates sperm delivery

2014 Invited Speaker Workshop in Next Generation Sequencing. UNC Charlotte May 13, 2015 "Caught in the act: Pollen-Pistil Transcriptomics"

Invited Speaker Pollen Research Collaborative Network Annual Meeting. Charlotte NC May 15, 2014 "Exploiting pollen to define gene function within complex families: A pair of β-galactosidases essential for extension of the pollen tube cell wall"

Session Leader Pollen Research Collaborative Network Annual Meeting

2015 Discussion Leader – Gordon Research Conference – Fertilization and Activation of Fertilization & Activation of Development - Where Basic Meets Clinical Meets Mechanism - July 19-24, 2015 Holderness School, Holderness, NH

Invited Speaker – Annual Meeting of the American Society of Plant Physiologists – July 26 - 30, 2015; Minneapolis, MN; Minisymposium 19: Reproductive Barriers: Molecular and Evolutionary; "Molecular Dialogues Between Pollen and Pistil"

Invited Speaker - 5th Annual Pollen Research Collaborative Network meeting, July 25 & 26, 2015 Humphrey School of Public Affairs, University of Minnesota Twin Cities, Minneapolis, MN "Quantifying pollen tube and pistil gene expression using SNP-informed RNA-Sequencing"

Session Leader - 5th Annual Pollen Research Collaborative Network meeting, July 25 & 26, 2015 Humphrey School of Public Affairs, University of Minnesota Twin Cities, Minneapolis, MN

2016 Invited Speaker - Northeast Regional meeting of the Society for Developmental Biology (NESDB) April 15 - 17, 2016 Marine Biological Laboratories, Woods Hole, Massachusetts. "Molecular Dialogues between Pollen and Pistil"

Invited Speaker - The Ohio State University, Workshop in Functional Genomics June 16th, 2016. "Molecular Dialogues between Pollen and Pistil"

Invited Speaker - Cold Spring Harbor Laboratory, Frontiers and Techniques in Plant Biology July 13th, 2016. "Molecular Dialogues between Pollen and Pistil"

2017 Invited Speaker - Cold Spring Harbor Laboratory, Frontiers and Techniques in Plant Biology July 16th, 2016. "Molecular Dialogues between Pollen and Pistil"

6. Research Grants

a. Current (order by start date)

NIH/NIGMS
Training in Molecular and Cell Biology and Biochemistry
5 T32 GM007601-35
9/1/1979 – 6/30/2020
Primary Investigator: Kimberly Mowry
$347,360 Direct Costs/year
$17,549 Indirect Costs/year
Mark Johnson Effort = 0.24 Calendar Months (2% effort)

National Science Foundation
IOS-1353798
Integrated analysis of pollen recognition and double fertilization mechanisms
07/01/14 - 6/30/18
Principal Investigator: Mark Johnson
Indirect Costs: $213,431
Direct Costs: $456,278

Total Award Amount: $669,709
Mark Johnson Effort = 1 Summer Month (8.3% effort)

Howard Hughes Medical Institute
Optimizing the first two years to maximize STEM retention at Brown
9/1/14 - 8/31/19
Principal Investigator: Mark A. Johnson
Total Award Amount: $1,500,000
Mark Johnson Effort = 1 Summer Month (8.3% effort)

ERA-CAPS
National Science Foundation
Evolution of Reproduction
04/01/15 - 3/31/18
Principal Investigator: Jorg Becker CoPIs: Berger, Frederic; Dresselhaus, Thomas; Sprunck, Stefanie; Twell, David; Mutwil, Marek; Gutierrez-Marcos, Jose; Johnson, Mark
Indirect Costs: $203,308
Direct Costs: $335,792
Total Budgeted for Brown (Johnson): $539,100
Mark Johnson Effort = 1 Calendar Month (8.3% effort)

b. Completed

Howard Hughes Medical Institute
Advancing Investigation and Collaboration in the Life Sciences – Brown University undergraduate research and teaching program
9/1/10 - 8/31/14
Principal Investigator: Mark A. Johnson (assumed role June 2013)
Total Award Amount: $1,000,000

National Science Foundation
HAP2(GCS1): Mechanisms of Double Fertilization (IOS-1021917)
08/01/10 - 07/31/15
Principal Investigator: Mark A. Johnson
Total Award Amount: $419,986

Brown University office of Vice President for Research, Research Seed Funds
Pollen Tube Glycobiology - A Chemical Genetic Analysis of Galactose Biochemistry in Growing Pollen Tubes
03/05/10 – 06/20/12
Principal Investigator: Mark A. Johnson
Total Award Amount: $100,000

National Science Foundation

HAP2/GCS1: Mechanisms of Double Fertilization (IOS-0644623).
06/01/07 – 05/31/10
Principal Investigator: Mark A. Johnson
Total Award Amount: $390,000

The Richard B. Salomon Faculty Research Awards, Brown University
How do gametes fuse? Identification of Egg-expressed Proteins Required for Sperm-Egg Fusion.
01/01/07 – 12/31/07
Principal Investigator: Mark A. Johnson
Total Award Amount: $15,000

Brown University office of Vice President for Research, Research Seed Funds
Carbohydrate-binding fluorescent nanoparticles: An enabling technology for glycomics.
02/15/07 – 2/14/08
Principal Investigator: Amit Basu, Brown University Chemistry Department; I was one of three co-PIs
Total Award Amount: $90,000

7. Service

i. Service to the University

a. Service to My Department and Graduate Program

2004/2005	Edds Lecture Committee. Invited and hosted Dr. Scott Poethig (co-organizer: Dr. Alison DeLong).
2005	Member MCB Graduate Program Admissions Committee
2005/2006	Member MCB Curriculum Committee
2005/2006	Co-Chair MCB Graduate Program Retreat Committee
2006/2007	Member of MCB Department Executive Committee
2006/2007	Chair MCB Graduate Program Retreat Committee
2007	Member MCB Joukowsky Award Nominating Committee
2008	Member MCB Graduate Program Admissions Committee
2008	Represented MCB Graduate Program at UMASS graduate school fair (October 29)
2008	Represented MCB Graduate Program and Leadership Alliance at Spelman College (November 12)
2008	Member MCB Curriculum Committee
2008/2009	Co-organizer of Professor Samuel Beale's Retirement Symposium
2009	Member MCB Curriculum Committee
2009	Represented MCB Graduate Program at Atlanta University Center Consortium Graduate Recruiting Fair (October 21)

2010	Represented MCB Graduate Program at the annual Society for Advancement of Chicanos and Native Americans in Science (SACNAS) meeting. Anaheim, CA (October 10-12, 2010)
2010	Chair MCB Curriculum Committee
2011	Represented MCB Graduate Program at the annual Society for Advancement of Chicanos and Native Americans in Science (SACNAS) meeting. San Jose, CA (October 27-30, 2011)
2011	Chair MCB Curriculum Committee
2011-2012	Led effort to review and summarize MCB Undergraduate Curriculum for Departmental self-study and external review
2012-2013	Member Structural Biology Faculty Search Committee Member of MCB Curriculum Committee
2013-2014	Member of MCB Departmental Space Committee
2014-2015	Chair MCB Curriculum Committee Member MCB Space Committee
2015-	Director MCB Graduate Program. Appointed July 1, 2015. Member of Biology Curriculum Committee Chair MCB Executive Committee Member Biology Awards Committee

b. Service to the University Outside My Department

2005/2006	Member of Ecology and Evolutionary Biology (EEB) search committee for an assistant professor in Molecular Phylogeny – led to hire of Erika Edwards
2006-2009	Active participant and coordinator of interdepartmental efforts to build a Program in Plant Biology at Brown University. I have helped organize a Plant Biology Journal Club and have gathered and distributed information on Brown's Plant Biology curriculum and research offerings.
2007	Academic Seminar Leader for incoming first year students. Led discussion of Alain de Botton's, *How Proust Can Change Your Life*,
2008	Member, discussion panel for PI 101: Key Advice for the Newly Independent Investigator and Those Who Want to Be (January 28)
2008-2010	Member of University Faculty Campaign Committee (elected February 5, 2008, served until 2010 when Campaign ended)
2008	Member, discussion panel for BioMed Division Grant Writing Workshop (May 22).
2008	Leader, discussion panel for "Postdoc Orientation, Resource and Networking" an event organized by Nancy L. Thompson, Ph.D. Associate Dean for Graduate and Postdoctoral Studies, Division of Biology and Medicine (September 22.)
2009	Member of Undergraduate Biology Senior Prizes Committee

2009	Academic Seminar Leader for incoming first year students. Led discussion of Jonathan Weiner's, *The Beak of the Finch: A Story of Evolution in Our Time*
2010	Academic Seminar Leader for incoming first year students. Led discussion of Edwidge Danticat's, *The Dew Breaker*
2010	Member of HHMI/Brown University Undergraduate Research Program advisory committee
2010	Member Brown University Undergraduate Biology Curriculum Committee
2011	Academic Seminar Leader for incoming first year students. Led discussion of *Factory Girls* by Leslie T. Chang
2011	Member of HHMI/Brown University Undergraduate Research Program advisory committee
2011	Member Brown University Undergraduate Biology Curriculum Committee
2011	Member of Brown University, Office of the Vice President for Research, Conflict of Interest Review Board
2011	Member of Brown University, BioMed Division, Biology Space Policy Committee Represented MCB Graduate Program at the SACNAS STEM Conference. San Jose, CA (October 2011)
2012	Member of HHMI/Brown University Undergraduate Research Program advisory committee Member Brown University Undergraduate Biology Curriculum Committee Member of Brown University, Office of the Vice President for Research, Conflict of Interest Review Board Member of Brown University, BioMed Division, Biology Space Policy Committee Academic Seminar Leader for incoming first year students. Led discussion of *Sons of Providence* by Charles Rappley Member Ecology and Evolutionary Biology Faculty Search Committee Founding Faculty Advisor for Brown University SACNAS Chapter
2013	Member of HHMI/Brown University Undergraduate Research Program advisory committee Member Brown University Undergraduate Biology Curriculum Committee Member of Brown University, Office of the Vice President for Research, Conflict of Interest Review Board Member of Brown University, BioMed Division, Biology Space Policy Committee Founding Faculty Advisor for Brown University SACNAS Chapter Member of the Advisory Board for Brown University BioMed Division Office of Diversity and Multicultural Affairs

HHMI Sumer Research Program Director
Represented MCB Graduate Program at the SACNAS STEM Conference. San Anotnio, Tx (October 2013)

2014 Member Brown University Undergraduate Biology Curriculum Committee
Member of HHMI/Brown University Undergraduate Research Program advisory committee
Member of Brown University, Office of the Vice President for Research, Conflict of Interest Review Board
Member of Brown University, BioMed Division, Biology Space Policy Committee
Founding Faculty Advisor for Brown University SACNAS Chapter
Member of the Advisory Board for Brown University BioMed Division Office of Diversity and Multicultural Affairs
HHMI Summer Research Program Director
Member MCB Graduate Program Executive Committee
Represented MCB Graduate Program at the SACNAS STEM Conference. Los Angeles, CA (October 16-19, 2014)

2015 Member of Brown University, Office of the Vice President for Research, Conflict of Interest Review Board
Member of Brown University, BioMed Division, Biology Space Policy Committee
Member of the Advisory Board for Brown University BioMed Division Office of Diversity and Multicultural Affairs
Member Brown University Undergraduate Biology Curriculum Committee
Founding Faculty Advisor for Brown University SACNAS Chapter
HHMI Undergraduate Education Program Director
Member MCB Graduate Program Executive Committee
Represented MCB Graduate Program at the SACNAS STEM Conference. Washington, DC (October, 2015)

2016 Member of Brown University, Office of the Vice President for Research, Conflict of Interest Review Board
Member of the Advisory Board for Brown University BioMed Division Office of Diversity and Multicultural Affairs
Member Brown University Undergraduate Biology Curriculum Committee
Founding Faculty Advisor for Brown University SACNAS Chapter
HHMI Undergraduate Education Program Director
Member MCB Graduate Program Executive Committee
Represented MCB Graduate Program at the SACNAS STEM Conference. Long Beach, CA (October, 2016)

2017	Scientific Advisor for SciToons, a Brown program developed to engage STEM and non-STEM students and faculty in the creation of science animation. Represented MCB Graduate Program at the SACNAS STEM Conference. Salt Lake City, Utah (October, 2017) Interim Chair of Brown University, Office of the Vice President for Research, Conflict of Interest Review Board Member of the Advisory Board for Brown University BioMed Division Office of Diversity and Multicultural Affairs Member Brown University Undergraduate Biology Curriculum Committee Founding Faculty Advisor for Brown University SACNAS Chapter HHMI Undergraduate Education Program Director Member of Brown University Goldwater Scholarship Selection Committee

ii. Service to the Profession

2000-2004	Member of Joint Steering Committee for Public Policy, Bethesda, MD (a coalition of the American Society for Cell Biology, the Genetics Society of America, the Society for Neuroscience, and Science Service) (2000-2004).
2004	Participated in Joint Steering Committee for Public Policy, Capitol Hill Day. Washington, DC. June 9, 2004. I met with legislators and their staff members to discuss funding for basic biological research and the use of stem cells in biological research.
2006-2013	Member of The American Society of Plant Biology
2006-2009	Member of the American Association for the Advancement of Science
2006-2012	Grant reviews: USDA National Research Initiative Competitive Grants Program (2003, 2005, 2006); National Science Foundation: Mechanisms of Plant Development (2003, 2005, 2006, 2008); National Science Foundation: International Research Fellowship Program (2006), Binational Agricultural Research and Development Fund (2012), French National Agency (ANR, 2012)
2009-2013	Core Participant: National Science Foundation Collaborative Proposal, Research Collaborative Network on Integrative Pollen Biology.
2009	Session Chair, Reproductive Biology mini-symposium – Annual meeting of the American Society of Plant Biologists (7/20/09)
2010	Co-organizer, North East Section of The Society for Developmental Biology Annual meeting (4/23 – 4/25)

2010	Member of Department of Energy *Genomic Science and Technology for Energy and the Environment* grant review panel. Arlington, VA, December 8 -10th, 2010
2010	Editor: Frontiers in Plant Genetics and Genomics Frontiers in Plant Physiology BMC Plant Biology
2011	Host and lead instructor for international NSF-funded Pollen Methods Course. Brown University. June 6-13 2011. National Science Foundation Grant Review Panelist (4/13-4/15). Plant, Fungal and Microbial Developmental Systems Editor: Frontiers in Plant Genetics and Genomics Frontiers in Plant Physiology BMC Plant Biology
2012-current	Associate Editor: BMC Plant Biology Editorial Board: Journal of International Plant Biology
2012	Plenary Session Chair, Plant Reproduction For Food, International congress on Sexual Plant Reproduction. Melbourne, Australia, 13-17 February. Session Leader and Discussion Leader: Pollen Biology International Symposium "Frontiers in Pollen Tube Biology", Shanghai
2012 – 2015	Co-Lead Instructor and Organizer for Cold Spring Harbor Laboratory Course: FRONTIERS AND TECHNIQUES IN PLANT SCIENCE. This is the premier expert course for plant biology.
2013	American Society of Plant Biologists Annual Meeting. Key Speaker and Mini-Symposium organizer and leader
2003-2018	Manuscript Reviews: *BMC Genomics (2016), Plant Molecular Biology* (2003), *Plant Physiology* (2004, 2006-2018), *Science* (2003, 2012), *The Plant Cell* (2005-2017), *The Plant Journal* (2006-2013), *Sexual Plant Reproduction* (2006, 2007, 2009, 2011), *Developmental Biology* (2006), *Molecular Plant* (2008, 2012), *PNAS* (2008, 2011-2017). *Plant Science* (2008), *Development* (2008), *Nature* (2008), *PLosONE* (2009), *Journal of Experimental Botany* (2009, 2011), *Transgenic Research* (2011), *Current Biology* (2012, 2013, 2014), *Genes and Development* (2013), *eLife* (2016)
2014	Organizer 2015 Pollen Research Collaborative Network Meeting NSF Grant Review panelist (2 panels)
2015	Organizer 24th International Association of Sexual Plant Reproduction Research conference (Plant Reproduction 2016), Tucson, Arizona (USA) from March 18-23, 2016
2016	NSF Grant Review panelist

	Lecturer Cold Spring Harbor Laboratory Course: FRONTIERS AND TECHNIQUES IN PLANT SCIENCE.
2017	Organizer NSF-supported Imaging Workshop. University of Maryland, April 2017
	Lecturer Cold Spring Harbor Laboratory Course: FRONTIERS AND TECHNIQUES IN PLANT SCIENCE.
2018	NSF Grant Review panelist (February, 2018)

iii. Service to the Community

2008	Hosted Christopher M. Lee, Community College of Rhode Island student, for Winter Internship (January).
2008	March 27, Matching genotype to phenotype with PCR - Led group of 7th grade students from LaSalle school in demo in lab.
2008	Professional Development Seminar @ Spellman College - career opportunities for 21st century biologists
2009	Moses Brown School, Providence Rhode Island, Guest Discussion Participant, Seminar on Scientific Thought, Prof. Jamie German (4/1 and 5/1)
	Hosting Tania Sen, Community College of Rhode Island graduate, for fall internship (October)
	November 21, Brown Science Prep: Plant Biology and the Use of Model Organisms in Research. I created and led an outreach event at the Brown University Plant Environmental Center for ~30 Providence high school students. This event was organized through Brown Science Prep, a group of Brown University students who meet weekly with students to provide science enrichment and college preparation mentoring.
2010	Hampden Meadows School Math and Science Night (Barrington, RI). Led cell biology and genetics demonstrations for fourth and fifth graders.
2010	Hosted Chris Munzert, a Mt. Hope High School Teacher (Bristol RI) for three week research internship (June 30-July 21)
2011	Hampden Meadows School Math and Science Night (Barrington, RI). Led cell biology and genetics demonstrations for fourth and fifth graders (2/17/11).
	Led a group of 45 7th graders from the LaSalle school (Providence) in a tour of our lab and an introduction to Arabidopsis as a model system. Demonstrated PCR genotyping and gel electrophoreses (5/5/11).
	Hampden Meadows School Lunch and Learn (Barrington, RI). Pollen tubes: the fastest cell on earth. I used pollen as a model cell for a group of ~45 4th and 5th graders (5/20/11).
	Hosted Chris Munzert, a Mt. Hope High School Teacher (Bristol RI) for three week research internship (June 30-July 21)

2012	Led a group of 45 7th graders from the LaSalle school (Providence) in a tour of our lab and an introduction to Arabidopsis as a model system (5/23/12).
	Brown Science Prep High School Poster Competition Judge (12/8/2012)
2013	Led a group of 45 7th graders from the LaSalle school (Providence) in a tour of our lab and an introduction to Arabidopsis as a model system (3/28/13).
2014	Hosting Barrington High School student in laboratory for research internship
2015	Led tours of my lab for the Day of Biology celebration – Brown University BioMed Division 3/7/2015
	Hosted Barrington High School student in laboratory for research internship
	Speaker at Bay Spring Community Center, *Currents, Theme: Love, Talk Title: "Plant Sex" - 5/9/2015*
2016	Hosted Barrington High School student in laboratory for research internship, Summer 2016
	Speaker at Bay Spring Community Center, *Currents, Theme: Food, Talk Title: "Let's talk about GMOs" - 11/19/2016*
	Scientific Advisor, SciToons, "Mutations" https://www.youtube.com/watch?v=Jl1Aa7Iq4tc

8. Academic Honors, Fellowships, Honorary societies

1999	DuVall Scholar, Excellence in Graduate Research, Department of Microbiology, Michigan State University
1999	Best graduate student presentation. Midwest Section of The American Society of Plant Physiologists 45th Annual Meeting
2000	Anton Lang Research Excellence Award for Graduate Assistants. MSU-DOE Plant Research Laboratory
2001	Howard Hughes Medical Institute Postdoctoral Fellow
2002-2004	NIH National Research Service Award Postdoctoral Fellowship
2007	Richard B. Salomon Faculty Research Award, Brown University
2012	Commencement Speaker, Brown University Biology Undergraduate Graduation Ceremony, May 27th
2013	Dean of The College award for support of under-represented students in STEM fields at Brown University
2014	Brown University BioMed Dean's Award for Undergraduate Teaching and Mentoring
2016	Brown University MCB Graduate Program Faculty Mentor of the Year
2017	Brown University Karen T. Romer Prize for Undergraduate Advising and Mentoring

9. Teaching

a. Teaching Experiences Before Coming to Brown University

1993	Laboratory Teaching Assistant: Wake Forest University, Cell and Molecular Biology (introductory undergraduate course)
1995	Laboratory Instructor: Michigan State University, Advanced Microbiology Techniques (undergraduate course)
1997	Laboratory Instructor: Michigan State University, Cell and Molecular Biology (introductory undergraduate course)
1998	Guest Lecturer and Laboratory Course Development: Wake Forest University, Molecular Biology (advanced undergraduate course)
1999	Lecturer: Michigan State University, Plant Physiology (undergraduate course)
1998-2000	Michigan State University Certification in Teaching College Math and Science.
2000	Discussion Leader: The University of Chicago, General Principles of Genetic Analysis (graduate course)
2002	Guest Lecturer: Chicago State University, "Pollen as a model organism"
2001-2003	Guest Lecturer: The University of Chicago, Cell Signaling (advanced undergraduate course) "Signal Transduction in Plants"

b. Guest Lectures at Brown University

2004	Brown University MCB Department Bio201 Lecture: "The World's Fastest Cell: Mechanisms of Growth and Guidance in Pollen" September 8, 2004
2005	Brown University Bio131(Analysis of Development): "Plant v. Animal Development" December 2, 2004.
2005	Brown University Bio44 (Plant Organism): "Pollination and Fertilization: How sexual reproduction works in Angiosperms" February 10, 2005. Brown University Bio44 (Plant Organism): "Modification of Plant Genomes: Transformation and Breeding" February 24, 2005. Brown University Bio50 (Cell Biology): "The Plant Cell" April 15, 2005. Brown University Bio131 (Analysis of Development): "Plant Development: Similarities and differences" December 1, 2005. Brown University Bio201 Lecture: "Genetic analysis of plant reproduction: A model system for studying cell:cell interactions and targeted cell growth" October 3, 2005.
2006	Brown University Bio154 (Molecular Genetics): "Plant Genetics" March 23, 2006. Brown University Bio50 (Cell Biology): "The Plant Cell" April 12, 2006. Brown University Bio201 Lecture: "Genetic analysis of plant reproduction: A model system for studying cell:cell interactions and targeted cell growth" September 25, 2006.

2007 Brown University Bio131(Analysis of Development): "Plant v. Animal Development" February 22, 2007.
Brown University Bio50 (Cell Biology): "The Plant Cell" April 13, 2007.
Brown University BIOL 1940T Synthetic Biological Systems: "Bioenergetics and Biofuels" December 3, 2007.

2008 Brown University Bio154 (Molecular Genetics): "map-based cloning in model organisms" March 13, 2008.
Brown University BIOL 1940T Synthetic Biological Systems: "Bioenergetics and Biofuels" November 24, 2008.

2009 Brown University MCB Graduate Program Faculty Research Series, "Pollen tube genomics – genes required for rapid cell growth" September 14, 2009.

2010 Brown University BIOL 1270 Advanced Biochemistry, "Biochemistry of Biofuel"

2012 Brown University BIOL 1270 Advanced Biochemistry, "Biochemistry of Biofuels: Cellulose Synthesis"

2014 Brown University BIOL 1270 Advanced Biochemistry, "Biochemistry of Biofuels: Cellulose Synthesis"

2015 Brown University BIOL 1270 Advanced Biochemistry, "Biochemistry of Biofuels: Cellulose Synthesis"

c. Courses at Brown University

2006 BIOL 0440 The Plant Organism
I taught this undergraduate lecture/lab course with Dr. Alison DeLong. We redesigned an existing course to fully integrate the laboratory with the lecture. I designed and executed 12 new 1.5-hour lectures and five new three-hour labs. I participated in all lectures and labs. I held office hours for 1.25 hours per week and met with students by appointment. I graded and provided feedback on written assignments.
Enrollment: 18 undergraduate students
Lectures given: 12 (25 Total)
Laboratories led: 5 (10 Total)
Student Evaluations: Average overall effectiveness rating, **1.44***

2006 BIOL 2330 Topics in Developmental Biology: The Molecular basis of cell-cell recognition.
I taught this graduate seminar with Dr. Richard Freiman and Dr. Kristi Wharton. I gave one introductory lecture, worked with students to select papers for discussion, and led and participated in weekly three-hour discussions of current literature. I provided weekly feedback on student presentations in one-on-one meetings. I graded and provided feedback on written assignments.
Enrollment: 11 Graduate Students
Student Evaluations: Average overall effectiveness rating, **1.09***

2007 BIOL 1540/2540 Molecular Genetics
I taught this upper level undergraduate/Graduate course with Dr. Jeffrey Singer. I designed and executed 10 new 1.5-hour lectures. I held office hours for 1.25 hours per week and met with students by appointment. I graded and provided feedback on written assignments.
Enrollment: 21 (14 undergraduates, 7 graduates)
Lectures given: 10 (22 Total)
Student Evaluations: Average overall effectiveness rating, **1.30***

2007 BIOL 2330b Topics in Developmental Biology: Design the ultimate bioenergy crop plant.
I created and taught this completely new graduate seminar with Dr. Sam Beale. I gave two introductory lectures, worked with students to select papers for discussion, and led and participated in a weekly three-hour discussion of current literature. I provided weekly feedback on student presentations in one-on-one meetings, and graded and provided feedback on written assignments.
Enrollment: 7 Graduate Students, 3 Undergraduates, 1 Research Assistant
Student Evaluations: Average overall effectiveness rating, **1.10***

2008 BIOL 0440 The Plant Organism
I taught this undergraduate lecture/lab course with Dr. Alison DeLong. I gave 12 1.5-hour lectures and led five three-hour labs. I participated in all lectures and labs. I held office hours for 1.25 hours per week and also met with students by appointment. I graded and provided feedback on written assignments.
Enrollment: 16 undergraduate students
Lectures given: 12 (25 Total)
Laboratories led: 5 (10 total)
Student Evaluations: Average overall effectiveness rating, **1.20***

2009 BIOL 1540/2540 Molecular Genetics
I was the instructor and course leader for this upper level undergraduate/graduate course. I gave 14, 1.5-hour lectures and arranged 10 guest lectures. I participated in all lectures and class discussions. I held office hours for 2.5 hours per week and also met with students by appointment. I graded and provided feedback on written assignments, which included two exams and two drafts of a research proposal.
Enrollment: 34 (30 undergraduates, 4 graduates)
Lectures given: 14 (24 total)
Student Evaluations: Average overall effectiveness rating among undergraduates, **1.13***; among graduate students, **1.0***

2010 BIOL 1540/2540 Molecular Genetics
I was instructor (along with Judith Bender) and course leader for this upper level undergraduate/graduate course. I gave 10, 1.5-hour lectures. I participated in all

lectures and class discussions. I met with students by appointment (~5 hours/week). I graded and provided feedback on assignments, which included three exams.
Enrollment: 29 (23 undergraduates, 6 graduates)
Lectures given: 10 (24 total)
Student Evaluations: Average overall effectiveness rating among undergraduates, **1.09*** (n=11); among graduate students, **1.5*** (n=2)*

2010 BIOL 2290d Current Topics in Cell Biology: microRNA regulation of germ cells and development
I was instructor (along with Richard Freiman) and course leader for this upper level undergraduate/graduate seminar course. I gave an introductory lecture, worked with students to select papers for discussion, and led and participated in a weekly three-hour discussion of current literature. I provided weekly feedback on student presentations in one-on-one meetings, and graded and provided feedback on written assignments.
Enrollment: 3 Graduate Students, 6 Undergraduates, 1 Medical Student
Student Evaluations: Average overall effectiveness rating, **1.00*** (n=8)

2011 IMSD Module Graphic Presentation of Scientific Data
Initiative to Maximize Student Development (IMSD) is a Brown University BioMed program that provides resources to enhance graduate training. I led a group of five graduate students in four 1.5-hour workshop sessions to develop their skills in creating figures for scientific publication.
Enrollment: 5 Graduate Students

2011 BIOL 1540/2540 Molecular Genetics
I was instructor (along with Judith Bender) and course leader for this upper level undergraduate/graduate course. I gave 10, 1.5-hour lectures. I participated in all lectures and class discussions. I met with students by appointment (~5 hours/week). I graded and provided feedback on assignments, which included three exams.
Enrollment: 33 (25 undergraduates, 8 graduates)
Lectures given: 10 (24 total)
Student Evaluations: Average overall effectiveness rating among undergraduates, **1.05**[&] (n=22); among graduate students, **1.0**[&] (n=8)

2011 BIOL 2540 Molecular Genetics (Brown/Pfizer Masters Program)
I was sole instructor and course leader for this graduate course taught at the Pfizer Campus. I gave 14, 3-hour lectures. I met with students by e-mail and before and after each session. I graded and provided feedback on assignments, which included three exams.
Enrollment: 30 graduate students

Lectures given: 14 (14 total)
Student Evaluations: Average overall effectiveness rating among undergraduates, **1.45**[&] (n=29)

2011 BIOL 2290d Current Topics in Cell Biology: smallRNA regulation of germ cells and development
I was instructor (along with Richard Freiman) and course leader for this upper level undergraduate/graduate seminar course. I gave an introductory lecture, worked with students to select papers for discussion, and led and participated in a weekly three-hour discussion of current literature. I provided weekly feedback on student presentations in one-on-one meetings, and graded and provided feedback on written assignments.
Enrollment: 2 Graduate Students, 7 Undergraduates
Student Evaluations: Average overall effectiveness rating, **1.11**[&] (n=9)

HHMI Summer Scholars. The Genome Explorers. I led a 10-week summer research program for eight Brown University Undergraduates with my colleague, Alison DeLong. I worked with students to design and perform experiments. I met with students individually and in groups. I delivered a series of introductory lectures and led weekly group meetings. I supervised a team of graduate teaching assistants. The students worked full-time on the project that we developed.

2012 HHMI Summer Scholars. The Genome Explorers. I led a 10-week summer research program for eight Brown University Undergraduates with my colleague, Alison DeLong. I worked with students to design and perform experiments. I met with students individually and in groups. I delivered a series of introductory lectures and led weekly group meetings. I supervised a team of graduate teaching assistants. The students worked full-time on the project that we developed.
Summer

BIOL 2030 Foundations for Advanced Study in Experimental Biology
I was one of 5 instructors in this double credit graduate course. I developed 12 new lectures. I graded and provided feedback on assignments, which included two problem sets and three exams. I met with students outside class. I organized the discussion section of the course and led three two-hour sessions.
Enrollment: 13 graduate students
Lectures given: 12 (45 total)
Student Evaluations: Average overall effectiveness rating, **1.25**[&] (n=12)
Fall

GISP 0004 Group Independent Study, The Dynamic Glycobiology of the Pollen Tube. I was the faculty leader for this two-student GISP. I advised the

students on selection of course material. I participated in weekly meetings. I evaluated an end-of-semester research paper.
Fall

2013 HHMI Summer Scholars. The Genome Explorers. I led a 10-week summer research program for eight Brown University Undergraduates with my colleague, Alison DeLong. I worked with students to design and perform experiments. I met with students individually and in groups. I delivered a series of introductory lectures and led weekly group meetings. I supervised a team of graduate teaching assistants. The students worked full-time on the project that we developed. I also organized weekly group activities for all 32 participants in this program.
Summer

BIOL 0470 Genetics
I was instructor (along with Robert Reenan and Jody Hall) and course leader for this large enrollment undergraduate course. I developed and gave 13 1.5-hour lectures. I wrote weekly problem sets. I worked with students for 3 hours/week at the problem solving clinic. I wrote and administered two exams. I participated in all lectures and class discussions. I met with students by appointment (~5 hours/week). I graded and provided feedback on assignments, which included three exams.
Enrollment: 130 undergraduates
Lectures given: 13 (26 total)
Student Evaluations: Average overall effectiveness rating among undergraduates, **1.57[&]** (n=119)

2014 BIOL 0440 The Plant Organism
I taught this undergraduate lecture/lab course with Dr. Alison DeLong. We completely changed the course to make it focused on authentic inquiry.
Enrollment: 29 undergraduates (the highest in my experience)
Lectures given: 12 (24 total)
Student Evaluations: Average overall effectiveness rating among undergraduates, **1.37[&]**

HHMI Summer Scholars. The Genome Explorers. I led a 10-week summer research program for eight Brown University Undergraduates with my colleague, Alison DeLong. I worked with students to design and perform experiments. I met with students individually and in groups. I delivered a series of introductory lectures and led weekly group meetings. I supervised a team of graduate teaching assistants. The students worked full-time on the project that we developed. I also organized weekly group activities for all 32 participants in this program.
Summer

BIOL 0470 Genetics

I was instructor (along with Robert Reenan and Jody Hall) and course leader for this large enrollment undergraduate course. I developed and gave 13 1.5-hour lectures. I wrote weekly problem sets. I worked with students for 3 hours/week at the problem solving clinic. I wrote and administered two exams. I participated in all lectures and class discussions. I met with students by appointment (~5 hours/week). I graded and provided feedback on assignments, which included three exams.
Enrollment: 150 undergraduates
Lectures given: 13 (26 total)
Student Evaluations: Average overall effectiveness rating among undergraduates, **1.32[&]**

2015 BIOL2000C Current Topics in MCDB: Molecular Recognition and Signaling in Self and Non-self Interactions
I was instructor (along with Alison DeLong) and course leader for this upper level undergraduate/graduate seminar course. I gave an introductory lecture, worked with students to select papers for discussion, and led and participated in a weekly three-hour discussion of current literature. I provided weekly feedback on student presentations in one-on-one meetings, and graded and provided feedback on written assignments.
Enrollment: 7 Undergraduates
Student Evaluations: Average overall effectiveness rating, **1.20[&]** (n=5)

BIOL 0470 Genetics
I was instructor (along with Robert Reenan and Jody Hall) and course leader for this large enrollment undergraduate course. I developed and gave 13 1.5-hour lectures. I wrote weekly problem sets. I worked with students for 3 hours/week at the problem solving clinic. I wrote and administered two exams. I participated in all lectures and class discussions. I met with students by appointment (~5 hours/week). I graded and provided feedback on assignments, which included three exams.
Enrollment: 143 undergraduates
Lectures given: 13 (26 total)
Student Evaluations: Average overall effectiveness rating among undergraduates, **1.34[&]** (n=125)

2016 BIOL 0440 Inquiry in Plant Biology: Analysis of Plant Growth, Reproduction and Adaptive Responses (Spring)
I taught this undergraduate lecture and newly developed inquiry-based lab course with Dr. Alison DeLong. We continued to make changes to the laboratory portion of this course to make it focused around a single, novel, project.
Enrollment: 16 undergraduates
Lectures given: 12 (24 total)

Student Evaluations: Average overall effectiveness rating among undergraduates, **1.9**[&] (n=10)

BIOL 0470 Genetics (Fall)
I was instructor (along with Robert Reenan and Jody Hall) and course leader for this large enrollment undergraduate course. I developed and gave 13 1.5-hour lectures. I wrote weekly problem sets. I worked with students for 3 hours/week at the problem solving clinic. I wrote and administered two exams. I participated in all lectures and class discussions. I met with students by appointment (~5 hours/week). I graded and provided feedback on assignments, which included three exams.
Enrollment: 155 undergraduates
Lectures given: 13 (26 total)
Student Evaluations: Average overall effectiveness rating among undergraduates, **1.43**[&] (n=125)

BIOL 2030 Foundations for Advanced Study in Experimental Biology (Fall)
I was one of 4 instructors in this double credit graduate course. I developed 2 new lectures. I graded and provided feedback on assignments, which included a problem set and an exam. I met with students outside class.
Enrollment: 13 graduate students
Lectures given: 2
Student Evaluations: Average overall effectiveness rating, **1.5**[&] (n=6)

2017 BIOL 2540 Molecular Genetics (Brown/Pfizer Masters Program, Spring)
I co-instructed this graduate course taught at the Pfizer Campus with Richard Freiman. I gave 7, 3-hour lectures. I met with students by e-mail and before and after each session. I graded and provided feedback on assignments, which included two exams.
Enrollment: 17 graduate students
Lectures given: 7 (14 total)
Student Evaluations: Average overall effectiveness rating among undergraduates, **1.46**[&] (n=13)

BIOL 0470 Genetics (Fall)
I was instructor (along with Robert Reenan and Jody Hall) and course leader for this large enrollment undergraduate course. I developed and gave 13 1.5-hour lectures. I wrote weekly problem sets. I worked with students for 3 hours/week at the problem solving clinic. I wrote and administered two exams. I participated in all lectures and class discussions. I met with students by appointment (~5 hours/week). I graded and provided feedback on assignments, which included three exams.
Enrollment: 144 undergraduates
Lectures given: 13 (26 total)

Student Evaluations: Average overall effectiveness rating among undergraduates, **1.41**[&] (n=111)

* Rating scale for student evaluations: (1, excellent; 2 very good; 3, good; 4 fair; 5, poor).
[&] Rating Scale for student evaluations: (1, Very effective; 2, Effective; 3, Somewhat effective; 4, Ineffective; 5,Very ineffective)

d. Directed Research

2005	Brown University UTRA Mentor: Adisorn Chaibang
	Brown University Bio195, Adisorn Chaibang.
2006	Brown University Bio196, Mark Tuttle
	Brown University UTRA Mentor: Adisorn Chaibang
	Brown University UTRA Mentor: Mark Tuttle
	Brown University Bio195, Azeem Kaka
	Brown University Bio195, Keith Heyward
2007	Brown University Bio195, Julia Gehring
	Brown University TEAM UTRA project mentor: Laurel Wright, Shang Song, Jason Becker, David Kern
2008	Brown University TEAM UTRA project mentor: Shannon Stone, David Kern
	Brown University Bio196, Adisorn Chaibang
	Brown University Bio196, David Kern
	Brown University Bio195, David Kern
	Brown University Bio195, Laurel Wright
	Brown University Bio195, Alexander Chang
2009	Brown University Bio196, Alexander Chang
	Brown University Bio196, David Kern
	Brown University Bio196, Laurel Wright
	Brown University TEAM UTRA project mentor: Spencer Clark, Emmy Hartman, Sophia Wang, Clara Levy
	Brown University Bio195, Sophia Wang
	Brown University Bio195, Clara Levy
2010	Brown University Bio196, Sophia Wang
	Brown University Bio196, Clara Levy
	Brown University Bio195, Casie Horgan
	Brown University Bio195, Clara Levy
	Brown University TEAM UTRA project mentor: Spencer Clark, Sophia Wang, Clara Levy
2011	Leader for HHMI summer undergraduate research program. Co-leader (with Alison DeLong) of a group of 8 students in 10-week research project called, Genome Explorers.
	Brown University Bio195, Abe Pressman, Fall

	Brown University Bio195, Karolina Woroniecka, Fall
	Brown University Bio195, Sumitha Raman, Fall
	Brown University Bio195, Jefferson Chen, Fall
2012	Brown University Bio196, Jefferson Chen, Spring
	Leader for HHMI summer undergraduate research program. Co-leader (with Alison DeLong) of a group of 8 students in 10-week research project
	Brown University Bio195, Emily Gould, Fall
	Brown University Bio195, Karolina Woroniecka, Fall
2013	Brown University Bio195, Julie Diamond, Fall
	Brown University Bio195, Austin Draycott, Fall
2014	Brown University Bio195, Julie Diamond, Spring
	Brown University Bio195, Austin Draycott, Spring
	Brown University Bio195, Austin Draycott, Fall
2015	Brown University Bio196, Austin Draycott, Spring
	Brown University Bio195, Samantha Paul, Fall
	Brown University Bio195, Arielle Johnson, Fall
	Brown University Bio195, Hayden Peirce, Fall
2016	Brown University Bio196, Hayden Peirce, Spring
	Brown University Bio195, Jacob Goldberg, Fall
2017	Brown University Bio196, Jacob Goldberg, Spring
	Brown University Bio196, William Dawson, Spring
	Brown University Bio 1950, Jonathan Dow, Fall

e. Academic Advising

2005	Sophomore Advisor: Adisorn Chaibang
2006	Sophomore Advisor: Owen Miler
2008-2009	Concentration Advisor: Nisha Narula (AB, Biology, 2009)
	Concentration Advisor: Tobias Cohen (AB, Biology, 2009)
	Concentration Advisor: Laurel Wright (AB, Biology, 2009)
	Concentration Advisor: Brian Luu (ScB, Biology, 2009)
	Concentration Advisor: Jennifer Park (ScB, Biology, 2009)
	Concentration Advisor: Julia Beamesderfer (ScB, Biology, 2009)
2009	First-year Advisor: Lacey Craker
	First-year Advisor: Justin Klee
	First-year Advisor: Sochitta Men
	First-year Advisor: Elizabeth Peterson
	First-year Advisor: Michelle Site
2010	Second-year Advisor: Lacey Craker

Second-year Advisor: Elizabeth Peterson
First-year Advisor: Sophie Beutel
First-year Advisor: Bryn Coughlan
First-year Advisor: Michelle Evans
First-year Advisor: Davis Feder
First-year Advisor: Roberto Ochoa-Sanchez
Concentration Advisor: Deborah Smith
Concentration Advisor: Elizabeth Bowman
Concentration Advisor: Lauren Comisar
Concentration Advisor: Mark Sabbagh
Concentration Advisor: Mrinal Kapoor
Concentration Advisor: William Donovan

Member of Brown University Team Enhanced Advising and Mentoring (TEAM) Initiative. We meet monthly to work on challenges facing Brown University Undergraduates

2011 First-year Advisor: James Connelly
First-year Advisor: Efe Cudjoe
First-year Advisor: Megan Marshall
First-year Advisor: Ivan Samayoa
Second-year Advisor: Sophie Beutel
Second-year Advisor: Bryn Coughlan
Second-year Advisor: Michelle Evans
Second-year Advisor: Davis Feder
Concentration Advisor: Deborah Smith
Concentration Advisor: Elizabeth Bowman
Concentration Advisor: Lauren Comisar
Concentration Advisor: Mark Sabbagh
Concentration Advisor: Mrinal Kapoor
Concentration Advisor: William Donovan

Group Leader for Brown University Team Enhanced Advising and Mentoring (TEAM) Initiative.

2012 First-year Advisor: James Connelly
First-year Advisor: Efe Cudjoe
First-year Advisor: Megan Marshall
First-year Advisor: Ivan Samayoa
Second-year Advisor: Sophie Beutel
Second-year Advisor: Bryn Coughlan
Second-year Advisor: Michelle Evans
Second-year Advisor: Davis Feder
Concentration Advisor: Deborah Smith

Concentration Advisor: Elizabeth Bowman
Concentration Advisor: Lauren Comisar
Concentration Advisor: Mark Sabbagh
Concentration Advisor: Mrinal Kapoor
Concentration Advisor: William Donovan

2012-2013 First-year Advisor: Isaac Bierer
First-year Advisor: Hayley Buckey
First-year Advisor: Pei Ling Chia
First-year Advisor: Elina Liakos
First-year Advisor: Jamie Pospishil
First-year Advisor: Gustavo Yanez
Second-year Advisor: James Connelly
Second-year Advisor: Efe Cudjoe
Second-year Advisor: Megan Marshall
Second-year Advisor: Ivan Samayoa
Concentration Advisor: Dana Gopelrud
Concentration Advisor: Hailey Roumimper
Concentration Advisor: Krissia Rivera
Concentration Advisor: Nick Hilton
Concentration Advisor: George Mencoff

2013-2014 First-year Advisor: Kayla Weststeyn
First-year Advisor: Shandell Scott
First-year Advisor: Ashlee Thomas
First-year Advisor: Ali Gunesch
Sophomore Advisor: Isaac Bierer
Sophomore Advisor: Hayley Buckey
Sophomore Advisor: Pei Ling Chia
Sophomore Advisor: Elina Piakos
Sophomore Advisor: Jamie Pospishil
Sophomore Advisor: Gustavo Yanez
Concentration Advisor: Dana Gopelrud
Concentration Advisor: Hailey Roumimper
Concentration Advisor: Krissia Rivera
Concentration Advisor: Nick Hilton
Concentration Advisor: George Mencoff
Concentration Advisor: Austin Draycott
Concentration Advisor: Katherine Bupp
Concentration Advisor: Efe Cudjoe
Concentration Advisor: Maxwell Danielsson
Concentration Advisor: Michael Franklin
Concentration Advisor: Matthew Gasteiger
Concentration Advisor: Helen Koski

Concentration Advisor: Beverley Naigles

2014-2015
First-year Advisor: Golden, Daniel
First-year Advisor: Kessler, William
First-year Advisor: Mokaya, Clarence
First-year Advisor: Moreno, Adam
First-year Advisor: Tamburro, Cecelia
First-year Advisor: Wang, Amy
Sophomore Advisor: Shandell Scott
Sophomore Advisor: Ashlee Thomas
Sophomore Advisor: Ali Gunesch
Concentration Advisor: Dana Gopelrud
Concentration Advisor: Hailey Roumimper
Concentration Advisor: Krissia Rivera
Concentration Advisor: Nick Hilton
Concentration Advisor: George Mencoff
Concentration Advisor: Austin Draycott
Concentration Advisor: Katherine Bupp
Concentration Advisor: Efe Cudjoe
Concentration Advisor: Maxwell Danielsson
Concentration Advisor: Michael Franklin
Concentration Advisor: Matthew Gasteiger
Concentration Advisor: Helen Koski
Concentration Advisor: Beverley Naigles

2015-2016
First-year Advisor: Blackwater, Tyler
First-year Advisor: Dixon, Kathryn
First-year Advisor: Helfand, Jordan
First-year Advisor: Lindor, Westerband
First-year Advisor: Ribet, Caroline
First-year Advisor: Viramontes Tse, Crystal
Sophomore Advisor: Golden, Daniel
Sophomore Advisor: Kessler, William
Sophomore Advisor: Mokaya, Clarence
Sophomore Advisor: Moreno, Adam
Sophomore Advisor: Tamburro, Cecelia
Sophomore Advisor: Wang, Amy
Concentration Advisor: Pombrol, Michelle
Concentration Advisor: Pyfrom, Elana

2016-2017
First-year Advisor: Cuevas, Abigail
First-year Advisor: Goh, Neil
First-year Advisor: Sackett, Violet
First-year Advisor: Taitague, Julian

Sophomore Advisor: Blackwater, Tyler
Sophomore Advisor: Helfand, Jordan
Sophomore Advisor: Lindor, Westerband
Sophomore Advisor: Ribet, Caroline
Sophomore Advisor: Viramontes Tse, Crystal
Concentration Advisor: Carrillo, Amber
Concentration Advisor: Dow, Jonathan
Concentration Advisor: Pyfrom, Elana
Concentration Advisor: Tan, Jeffrey

2017-2018 First-year Advisor:Baranker, Ben
First-year Advisor:Hidysmith, Evie
First-year Advisor:Jackson, Ray
First-year Advisor:Lenail, Maximilian
First-year Advisor:Moriconi, Camberly
First-year Advisor:Rudic, Tamara
Sophomore Advisor: Cuevas, Abigail
Sophomore Advisor Goh, Neil
Sophomore Advisor: Sackett, Violet
Sophomore Advisor: Taitague, Julian
Concentration Advisor: Carrillo, Amber
Concentration Advisor: Darden, Evelyn
Concentration Advisor: Dow, Jonathan
Concentration Advisor: Huminski, Heather
Concentration Advisor: Lubeck, Lauren
Concentration Advisor: Osborne, Jennifer
Concentration Advisor: Tan, Jeffrey
Concentration Advisor: Verdesca, Andrew
Concentration Advisor: Viramontes Tse, Crystal

f. Senior Thesis Reader

2005	Nathaniel Smilowitz, MCB
	Elizabeth Winograd-Cort, EEB
2006	Rosie Dent, 2006, EEB
	Michael Clark-Pearson, MCB
2007	Alex Leydon, MCB
2008	Jake Rosenberg, MCB
	Chris Inra, MCB
2009	Anthony Myint, MCB
	Matthew Gevelinger, MCB
	Julia Beamesderfer, MCB
2011	Eliza Hamm, MCB
2015	Eric Tung, MCB

2016 Emma Corcoran, MCB

g. Ph.D. Thesis Committee Member

2005 James Gagnon (MCB, Chair; PhD 2010)
Maryanna Aldrich (MCB, PhD 2011)
2006 Susanne DiSalvo (MCB, PhD 2011)
Yiannis Savva (MCB, PhD 2011)
Bruce Bryan (EEB, Masters degree 2008)
2007 Kyle Skottke (MCB, PhD 2011)
Stephen Brown (MCB, PhD 2011)
2008 Mini Aggarwal (UMASS, Amherst, Masters degree 2009).
2009 Adrian Reich (MCB, Chair, PhD 2014)
Diana Donovan (MCB, PhD 2013)
2010 Marcela Soruco (MCB, Chair, PhD 2014)
Allison Porman (MCB, PhD 2014)
2011 Matthew Booker (MCB, Chair, PhD 2016)
Christopher Neil (MCB, current)
2012 Christine Scudato (MCB, PhD 2017)
2014 Jenna Kotak (MCB, Current)
Chapman Beekman (MCB, Chair, Current)
2015 Mascaro, Alexandra (MCB, current)
Moeglein, Morgan (EEB, current)
Sinclair-Davis, Amy (MCB, current)
2016 Megan Gura (MCB, Chair, current)
Greg Thompson (MCB, Chair, current)
Liam O'connell (MCB, Chair, current)
2017 Jiwon Seo (MCB, current)
Emily Chen (MCB, current)
Joshua Berus (MCB, current)

h. Research Mentoring

1. Laboratory Members

Ph.D. Students (4)

Aubrey Frank (Spring 2005, PhD January 19, 2010. Her thesis was entitled, "HAP2(GCS1) is a conserved sperm-expressed gene required for fertilization" Aubrey completed a post-doctoral fellow at Dartmouth College. She is chair of the Science Department at a Boston High School.

Kristin Beale (Spring 2009, PhD July 12, 2013). Her thesis was entitled, "Coupling Gamete Fusion with Sperm Cell Delivery Maximizes Reproductive

Success in Flowering Plants" Kristin completed a post-doctoral fellowship at Harvard Medical School. She is currently in law school.

Alexander Leydon (Spring 2011, PhD April 17, 2015) "A trio of MYB transcription factors coordinates expression of a battery of secreted proteins that promote pollen tube identity and reception by the female." Alex is currently a post-doctoral fellow at the University of Washington (Jennifer Normanly, Advisor).

Jennifer Forcina (Spring 2013, current)

Nathaniel Ponvert (Spring 2016, current)

Graduate Student Rotations

Aubrey Frank (rotation, Spring of 2005; Joined lab September 2005)
Susanne DiSalvo (rotation, Spring 2006)
Yuko Hasegawa (rotation, Fall 2006)
Lulu Tsai (rotation, Spring 2008)
Kristin Beale (rotation, Winter 2009, Joined lab June 2009).
Marcela Soruco (Fall 2009)
Alex Leydon (Fall 2010)
Brian Jones (Spring 2012)
Kayla Mislick (Fall 2012)
Jen Forcina (Winter 2013)
Trenton Woodham (Fall 2014)
Amy Sinclair (Spring 2015)
Nathaniel Ponvert (Summer 2015)
Liam O'Connell (Spring 2016)
Ethan Fitzgerald (Spring 2017)

Post-doctoral Fellows (3):

Julian Wong (June 2005-July 2009, now at Scripps Research Inst.)
Alexander Leydon (June 2015 - December 2016)
Ben Rimon (September 2015 - September 2017, Rsearch Faculty Member, Volcani Center, Israel)

Research Assistants (3):

Althea Moore (joined Lab February 2005; left for grad school August 2007)
Keith Heyward (joined Lab August 2007; left for field research March, 2008)
Alex Leydon (joined Lab October 2007; joined MCB graduate program August 2010).
Jacob Golderg (Joined Lab May 2017; Left for Biotech job December 2017)

Undergraduate Researchers (41):

1. Adisorn Chaibang (joined lab February 2005, graduated May 2008, UC Berkeley Ph.D. program)
2. Mark Tuttle (joined lab March, 2005; graduated May 2007, in medical school) Keith Heyward (joined lab March 2006, graduated May 2008, Documentary Film Maker)
3. Julia Gehring (joined lab April, 2006; went to new lab at Brown Fall 2007)
4. Azeem Kaka (joined lab September 2006, graduated May 2008, engineer)
5. Anshul Paralkur (lab member during 2007/2008)
6. Sophia Tintori (joined lab 2007; went to new lab at Brown Summer 2008, applying to grad school)
7. Alexander Chang (joined lab 2007, graduated 2009, Emory PhD Program)
8. David Kern (joined lab 2007, graduated 2009, MIT Ph.D. program)
9. Laurel Wright (joined lab 2007, graduated 2009, MIT PhD program)
10. Sophia Wang (joined lab 2009, Graduated 2010, Peace Corps, Medical School Fall 2013 Wake Forest)
11. Clara Levy (joined lab 2009, Graduated 2011, Harvard PhD program Fall 2012)
12. Emmy Hartman (joined lab fall 2010, Graduated 2012, Research Position at Broad Institute, PhD Program at UC Berkeley)
13. Anisa Khadraoui (joined lab summer 2010, Graduated 2013, Research Assistant Harvard Medical School)
14. Casie Horgan (joined lab summer 2010, Graduated 2011, applying to Graduate School in Public Health)
15. Karolina Woroniecka (joined lab fall 2011, Graduated 2013, MD/PhD Porgram Duke University)
16. Abe Pressman (joined lab Spring 2011, Graduated 2012, Graduate School UC Santa Barbara)
17. Elizabeth Castner (joined lab Spring 2012)
18. Sumitha Raman (joined lab summer 2011, Graduated 2013, Dartmouth Medical School)
19. Julie Diamond (joined lab fall 2011, Graduated 2014, teaching in Boston)
20. Emily Gould (joined lab fall 2012, Graduated 2013)
21. Austin Draycott (joined Summer 2012 as part of HHMI summer scholars, Graduated 2015, EvoRepro, Yale PhD program Fall 2017)
22. Samantha Paul (joined winter 2015, Integrated Mechanisms, Graduated 2016, Brown Medical School)
23. Shelby Wilson (joined fall 2014, EvoRepro, Graduated 2015, Brown Research Assistant, Boekelheide Lab)
24. Jonathan Moore (Tougaloo College, Summer 2014, Graduated 2016, Washington University post-baccalaureate program)
25. Caleb Weinreb (2014-2015, Integrated Mechanisms, Graduated 2015, now in MIT PhD program)
26. Elena Venable (2014-2015, Integrated Mechanisms, Graduated 2015)

27. Shanta Sykes (Tougaloo College, Integrated Mechanisms, Summer 2015 and 2016)
28. Grace Cinderella (Fall 2013, Integrated Mechanisms, Graduated May 2016)
29. Hayden Pierce (Summer 2015, Integrated Mechanisms,Graduate May 2016, Biotechnology Consultant)
30. Jonathan Dow (Fall 2015, current, EvoRepro)
31. Arielle Johnson (Joined Fall 2015, EvoRepro, Graduate May 2016, Cornell PhD program, Fall 2017)
32. Sasha Bennett (Joined Spring 2016, EvoRepro)
33. Jacob Goldberg (Joined Spring 2016, EvoRepro)
34. Jonathan Hagedorn (Brown, Biology, Joined Fall 2016, Evo Repro)
35. William Dawson (Brown, Computer Science, Joined Fall 2016, Evo Repro)
36. Sarahjane Kitiyakara-Fogel (CCRI, Joined Fall 2016, Evo Repro)
37. Nathan Sorscher (Brown Biology, Joined Fall 2016, Evo Repro)
38. Katie Duckworth (Brown Biology, Joined Fall 2016, Evo Repro)
39. Judson Ellis (Brown Biology, Joined Fall 2016, Evo Repro)
40. Crystal Zhang (Brown Biology, Joined Fall 2017)
41. Malcome Dentrell (Brown Biology, Joined Fall 2017)

I also mentored 32 students through the HHMI Summer Scholars program. Alison DeLong and I mentored 8 students per summer in 2010 – 2014.

2. Undergraduate Honors Theses (14)

2007	Azeem Kaka "Using *HAP2* as a tool for Bioengineering"
	Keith Heyward "Towards identification of functional domains within the HAP2 protein"
2008	Adisorn Chaibang "Pollen Tube Incongruence in Interspecific Crosses"
2009	David Kern "Untangling Carbohydrates by Intertwining Disciplines: The Galactobiology of Pollen Tube Growth"
	Laurel Wright "A pair of β-galactosidases is required for pollen tube penetration of the stigma"
	Alexander Chang "Identification of Possible Pathway Partners for the Arabidopsis Gene HAP2"
2010	Sophia Wang (December) "The Function of β-Galactosidases in Arabidopsis Pollen Tube Growth and Fertilization"
2011	Clara Levy "Beta-Galactosidases 11 and 13 and their Role in Arabidopsis pollen tube extension"
2012	Abe Pressman "A quantitative model of in vivo pollen tube growth in Arabidopsis"
2013	Sumitha Raman "Genes in Greens: β-galactosidases 11 and 13 are secreted to the cell wall in Arabidopsis thaliana pollen tubes"
2014	Julie Diamond "Two β-galactosidases are required for the extension of the pollen tube cell wall"

2015 Austin Draycott "Towards Thermotolerant Plant Reproduction: An Analysis of Pollen Responses to Heat Stress in Tomato and Arabidopsis"
2016 Samantha Paul "Elucidating the Role of Sucrose- Proton Symporters in Pollen Tube Reception"
Hayden Peirce "Biochemical analysis of Thionin-like proteins and their roles in the pollen tube reception of Arabidopsis thaliana"
2017 Jacob Goldberg "Successful Pollen Tube Growth Contributes to Heat Tolerant Fruit Set in *Solanum lycopersicum* cv. Nagcarlang"

3. Undergraduate Research Prizes

2008 Adisorn Chaibang, Brown University Senior Biology Prize
2008 David Kern, American Society of Plant Biologists Summer Undergraduate Research Fellowship
2009 David Kern, Brown University Elizabeth Leduc Prize, Cell Biology
Laurel Wright, Brown University Senior Biology Prize
2013 David Barrera, SACNAS Annual Meeting. American Society of Plant Biologists best poster prize. San Antonio, Tx October 2 – 5, 2013

4. Graduate Research Prizes

2008 Aubrey Frank. Frontiers in Sexual Plant Reproduction III. October 17-19. Second Prize in NSF-sponsored poster competition for graduate students and post-docs at this international meeting.

2011 Kristin Beale. Northeast Society for Developmental Biology annual meeting. Best Talk by Graduate Student or Postdoc

2012 Kristin Beale. Young Scientist Award – best talk. Plant Reproduction For Food, International congress on Sexual Plant Reproduction. Melbourne, Australia, 13-17 February.

2013 Alexander Leydon. Young Scientist Award – best talk. Biochemical Society focus meeting: 'Regulation of Fertilisation and early Seed Development' - 11-13 September, Bath, UK

5. Postdoctoral Research Prizes

2016 Alexander Leydon, "SNP-informed RNA-sequencing identifies pollen-specific secreted proteins that coordinate pollen tube reception". 24th International Congress on Sexual Plant Reproduction. Tucson, Arizona, USA, March 18-23, 2016. Best Talk.