

Emily B. Josephs

NSF National Plant Genome Initiative Postdoctoral Research Fellow

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Employment

- 2019 – Assistant Professor, Plant Biology, Michigan State University
- 2016 – 19 NSF Postdoctoral Fellow, University of California, Davis
Mentors: Graham Coop, Jeffrey Ross-Ibarra, Julin Maloof
- 2009 – 10 Intern, FIBR Guppy Project, Trinidad
Supervisor: David Reznick (University of California, Riverside)
- 2008 – 09 Research Associate, Indiana University
Supervisor: Leonie Moyle
- 2006 – 08 Undergraduate Research Assistant, Brown University
Supervisor: Johanna Schmitt

Education

- 2010 – 16 Ph.D. Ecology & Evolutionary Biology, University of Toronto
Advisors: John Stinchcombe & Stephen Wright
- 2004 – 08 A. B. Human Biology: Ecosystems, Evolution & Environment, Brown University
Honors thesis advisor: Johanna Schmitt

Papers

9. **E.B. Josephs**, S.I. Wright, J.R. Stinchcombe & D. J. Schoen. (2017) The relationship between selection, network connectivity, and regulatory variation within a population of *Capsella grandiflora*. *Genome Biology and Evolution* 9 (4): 1099-1109.
8. **E.B. Josephs**, J.R. Stinchcombe, & S.I. Wright. (2017) What can genome-wide association studies tell us about the evolutionary forces maintaining genetic variation for quantitative traits? *New Phytologist* 214 (1) 22-33.
7. **E.B. Josephs** & S.I. Wright. (2016) On the trail of linked selection. *Plos Genetics* 12(8): e1006240 (Perspective, not peer-reviewed)
6. **E.B. Josephs**, Y.W. Lee, J.R. Stinchcombe, & S.I. Wright. (2015) Association mapping reveals the role of purifying selection in the maintenance of genomic variation for gene expression. *Proceedings of the National Academy of Sciences* 112 (50) 15390-15395
5. A. Sicard, C. Kappel, **E.B. Josephs**, Y.W. Lee, C. Marona, J.R. Stinchcombe, S.I. Wright, & M. Lenhard. (2015) Divergent sorting of a balanced ancestral polymorphism underlies the establishment of gene-flow barriers in *Capsella*. *Nature Communications*. 6:7960
4. G.M. Douglas, G. Gos, K.A. Steige, A. Salcedo, K. Holm, **E.B. Josephs**, R. Arunkumar, J.A. Ågren K.M. Hazzouri, W. Wang, A.E. Platts, R.J. Williamson, B. Neuffer, M. Lascoux, T. Slotte, & S.I. Wright. (2015) Hybrid origins and the earliest stages of diploidization in the highly successful recent polyploid *Capsella bursa-pastoris*. *Proceedings of the National Academy of Sciences* 112 (9) 2806-2811.
3. R.J. Williamson*, **E.B. Josephs***, A.E. Platts, K.M Hazzouri, A. Haudry, M. Blanchette, & S.I. Wright. (2014) Evidence for widespread positive and negative selection in coding and conserved non-

coding regions of *Capsella grandiflora*. *Plos Genetics* 10(9): e1004622 (*First two authors contributed equally)

2. R. Arunkumar, **E.B. Josephs**, R.J. Williamson, & S.I. Wright. (2013) Pollen-specific, but not sperm-specific, genes show stronger purifying selection and higher rates of positive selection than sporophytic genes in *Capsella grandiflora*. *Molecular Biology and Evolution* 30 (11): 2475-2486
1. M. Debieu, C. Tang, B. Stich, T. Sikosek, S. Effgen, **E.B. Josephs**, J. Schmitt, M. Nordborg, M. Koornneef, & J. de Meaux. (2013) Co-Variation between seed dormancy, growth rate and flowering time changes with latitude in *Arabidopsis thaliana*. *PLoS ONE* 8(5): e61075

Awards

- 2016 NSF Postdoctoral Research Fellowship in Biology, Plant Genome Research Program (\$216,000)
- 2015 Young Investigator Travel Award to attend the annual meeting of the Society for Molecular Biology and Evolution (\$2,000)
- 2014 Ramsay-Wright Award, University of Toronto Dept. of Ecology & Evolutionary Biology (\$1,000)
- 2013 Canadian Plant Genomics Workshop Student Talk Award (\$500)
- 2011 Conference Grant, University of Toronto, School of Graduate Studies (\$700)
- 2010 NSF Graduate Research Fellowship (\$125,500)

Conference presentations

Detecting polygenic adaptation in maize

Society for the Study of Evolution, Portland, USA, 2017. Talk

The evolutionary forces maintaining within-population variation for gene expression

Society for the Study of Evolution. Austin, USA, 2016. Talk

Association mapping reveals the evolutionary forces maintaining genetic variation for gene expression

Society for Molecular Biology and Evolution. Vienna, Austria, 2015. Talk.

Society for the Study of Evolution, Raleigh, USA, 2014 Talk.

Canadian Society for Ecology and Evolution, Montreal, Canada, 2014. Talk.

Canadian Plant Genomics Workshop, Halifax, Canada, 2013. Talk.

Society for Molecular Biology and Evolution, Chicago, USA, 2013. Poster.

Characterizing patterns of gene expression and the selective forces which shape them in *Capsella grandiflora*.

First Joint Congress in Evolution, Ottawa, Canada, 2012. Talk

Evolution of gene expression in *Capsella grandiflora*

European Society for Evolutionary Biology, Tuebingen, Germany, 2011. Poster.

Canadian Society for Ecology and Evolution. Banff, Canada, 2011. Talk.

Natural Variation in the ability of cold to induce germination and reinduce dormancy in *Arabidopsis thaliana* seeds

Society for the Study of Evolution, Portland, USA, 2010. Poster.

Teaching Experience

Guest Lectures at the University of Toronto

Human Genome Evolution: Gene expression evolution (2012, 2013, 2014, 2015)

Human Genome Evolution: Adaptation and human height (2015)

Philosophy and Methods in EEB: Multiple testing correction (2014, 2015)

Teaching Assistant at the University of Toronto

Human Genome Evolution (2010 – 2015)

Evolutionary Ecology (Spring 2014)

Environmental Biology (Fall 2014)

Programming instruction

1. Co-taught an Introductory Programming and Population Genetics module as part of mentorship program with students from Pioneer High School in Woodland, CA. Three weeks. (2016)
2. Co-taught an Introduction to Python workshop for graduate students and postdocs in the University of Toronto Ecology and Evolutionary Biology Dept. Met weekly for eight weeks. (2014)
3. Volunteer mentor for Ladies Learning Code. Two one-day workshops (2013 – 2014)

Mentoring

2014 Jasmina Uzunovic (currently master's student in EEB at University of Toronto)

2014 Yannay Khaikin

2013 Mia Husic (currently a master's student in Cell & Systems Biology at the University of Toronto)

2011 Celina Baines (currently a Ph.D. student in EEB at the University of Toronto)

2011-12 Adriana Salcedo (currently a bioinformatician at the Ontario Institute for Cancer Research)

Service

Organizing committee for *WiLD* (**W**omen **i**n **L**ife Sciences at UC **D**avis)

Hiring Committee for Assistant Professor, University of Toronto EEB Department (2014)

Selection Committee for Department Chair, University of Toronto EEB Department (2013)

Co-president, University of Toronto EEB Graduate Students Association (2012 – 2013), also Student Seminar Chair (2014 – 2015), Ombudsman (2013 – 2014) and Fundraising Committee Chair (2011 – 2012)

Reviewer for *Plos Genetics*, *New Phytologist*, *Molecular Biology and Evolution*, *Genome Biology and Evolution*, *Genome Biology*, *Molecular Ecology*, *Heredity*, *G3*, *PeerJ*, *Plos ONE*