

**CONTACT INFORMATION**

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**CURRENT RESEARCH**

I am a computational biologist interested in studying evolution and population genetics in a spatial context. Most of my research focuses on consequences of isolation-by-distance, a phenomenon which results in the formation of spatial genetic structure in a population due to limited dispersal. I have developed several spatially-explicit individual based simulations to better understand how isolation-by-distance is affected by different dispersal distributions and different mating types. I am also working on developing a Bayesian method for estimating neighborhood size which roughly quantifies the spatial-genetic structure in a population due to isolation-by-distance.

**EDUCATION**

Ph.D.	Molecular and Cellular Biology	Arizona State University	Exp. 2016
	Advisor: Reed Cartwright		
B.S.	Bioinformatics and Genomics	Arizona State University	2010
	<i>magna cum laude</i>		

**PUBLICATIONS**

**Furstenau, TN**, and RA Cartwright (2015). The effect of the dispersal kernel on isolation-by-distance in a continuous population. Manuscript submitted for publication.  
<http://arxiv.org/abs/1501.01085>

Pizzio GA, Paez-Valencia J, Khadilkar AS, Regmi K, Patron-Soberano A, Zhang S, Sanchez-Lares J, **Furstenau T**, Li J, Sanchez-Gomez C, Valencia-Mayoral P, Yadav UP, Ayre BG and RA Gaxiola (2015). *Arabidopsis* proton-pumping pyrophosphatase *AVP1* expresses strongly in phloem where it is required for PPi metabolism and photosynthate partitioning. *Plant Physiology* **167**:1541-1553. doi:[10.1104/pp.114.254342](https://doi.org/10.1104/pp.114.254342)

**PRESENTATIONS****Talks**

- 2015 *Bayesian estimation of neighborhood size using composite marginal likelihoods*  
Society for Molecular Biology and Evolution · Vienna, Austria
- 2015 *Bayesian estimation of neighborhood size using composite marginal likelihoods*  
Molecular and Cellular Biology Colloquium · The Biodesign Institute
- 2014 *Evolution of Self-Incompatibility: Investigating the role of self-incompatibility systems in the prevention of biparental inbreeding.*  
Molecular and Cellular Biology Colloquium · The Biodesign Institute
- 2013 *Evolution of Self-Incompatibility: Investigating the role of self-incompatibility systems in the prevention of biparental inbreeding*  
Molecular and Cellular Biology Colloquium · Arizona State University
- 2012 *Is the  $H^+$ -pyrophosphatase involved in the regulation of sucrose transport in plants?*  
Molecular and Cellular Biology Colloquium · Arizona State University

**Posters and Abstracts**

- 2014 *The effect of the dispersal distribution on isolation-by-distance in a continuous population*  
Society for the Study of Evolution · Raleigh, NC
- 2014 *Characterization of Transgenic Arabidopsis thaliana overexpressing AVP1 and PLAFP*  
Undergraduate Research Poster Symposium · Arizona State University · Tempe, AZ  
Presented by Sean Wilson (undergraduate mentee)
- 2012  *$H^+$ -PPase AVP1 is necessary for phloem development in Arabidopsis thaliana*  
Molecular and Cellular Biology Graduate Student Retreat · Tempe, AZ
- 2012  *$H^+$ -PPase AVP1 is necessary for phloem development in Arabidopsis thaliana*  
American Society of Plant Biologists · Austin, TX

**RESEARCH EXPERIENCE**

- 2013-Present Graduate Student with Reed Cartwright  
Center for Human and Comparative Genomics  
The Biodesign Institute  
Arizona State University · Tempe, AZ
- 2010-2013 Research Assistant with Roberto Gaxiola  
School of Life Science  
Arizona State University · Tempe, AZ
- 2009-2010 Undergraduate Student Researcher with Lei Lei  
School of Life Science  
Arizona State University · Tempe, AZ

**AWARDS**

- 2015 ASU Graduate Education Travel Award
- 2015 ASU School of Life Sciences Travel Award

**TEACHING EXPERIENCE****Arizona State University**

## Courses:

2014	General Genetics	Head TA
2014	Introduction to Computational Molecular Biology	Innovative TA
2013	Concepts in Plant Biology iCourse	Instructor
2011-2015	General Genetics	Teaching Associate
2011	General Biology I & 2 Laboratory	Teaching Associate
2010	Genetic Engineering and Society Laboratory	Teaching Associate

## Undergraduate Mentorship:

2011-2013 Honors Thesis Mentor · Sean Wilson  
 Wilson S, Furstenau T, and R Gaxiola. Characterization of Transgenic *Arabidopsis thaliana* Overexpressing a Type I H<sup>+</sup> Pyrophosphatase and the Phloem Lipid-Associated Family Protein. <http://hdl.handle.net/2286/R.I.23607>

**SERVICE AND OUTREACH**

2015 Molecular and Cellular Biology and Microbiology Retreat Poster Judge  
 2015 Software Carpentry Workshop Helper  
 2015 Night of the Open Door Volunteer  
 2010-present Ask-A-Biologist Volunteer Correspondent  
 2011-2013 Green Labs Initiative Coordinator and Promoter  
 2012-2013 Phosphorus Sustainability Research Coordination Network Core Participant  
 2011-2012 Obama Scholars Mentor

**SOCIETY MEMBERSHIPS**

Society for the Study of Evolution  
 Society for Molecular Biology and Evolution  
 Graduate Integrative Society for Environmental Interdisciplinary Research  
 Central Arizona Chapter of the Association for Women in Science

**PROFESSIONAL DEVELOPMENT**

2013 Next Generation Population Genomics for Non-model Taxa Workshop  
 American Genetics Association · Cornell University · Ithica, NY  
 2011 Univector Plasmid-Fusion System training with Kendal Hirschi  
 Childrens Nutritional Research Center · Baylor College of Medicine · Houston, TX

**PROGRAMMING LANGUAGES**

C++, PYTHON, R, BASH, L<sup>A</sup>T<sub>E</sub>X, HTML/CSS, OPENBUGS, MATHEMATICA