Wade Roberts

Ph.D. Candidate

School of Biological Sciences
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Education

Washington State University, Pullman, WA | Aug 2012 – May 2017
Ph.D. in Molecular Plant Sciences
Dissertation title: Evolutionary developmental genomics of flower diversification
Advisor: Dr. Eric Roalson
Committee: Drs. Amit Dhingra, Joanna Kelley, and Andrew McCubbin

Whitworth University, Spokane, WA | Sep 2007 – May 2012
B.S. with Honors in Biology
B.A. with Honors in Art, sculpture and ceramics
Cumulative GPA: 3.60; Laureate Society
Advisors: Dr. Lee Anne Chaney and Ms. Katie Creyts

Publications

Roalson E.H., **Roberts W.R.** 2016. Distinct processes drive diversification in different clades of Gesneriaceae. Systematic Biology. In press. DOI: 10.1093/sysbio/syw012

Roberts W.R., Roalson E.H. Characterization and comparative analyses of floral transcriptomes in four species of *Achimenes* (Gesneriaceae). Genome Biology and Evolution. (in prep)

Roberts W.R., Crabb J.L., Dhingra A., Roalson E.H. Micropropagation and *Agrobacterium*-mediated genetic transformation of *Achimenes erecta* (Gesneriaceae). (in prep)

Presentations

Using comparative transcriptomics to understand flower diversification: an example from *Achimenes* (Gesneriaceae)
Botany, Savannah, GA | Jul 2016 (invited talk)
WSU SBS Graduate Student Symposium, Pullman, WA | Mar 2016 (invited symposium + poster)
WSU Academic Showcase, Pullman, WA | Mar 2016 (poster)
WSU Plant Sciences Retreat, Pullman, WA | Mar 2016 (poster)

Understanding flower diversification in *Achimenes* (Gesneriaceae) using a comparative transcriptomics approach
Pan-Am Evo Devo, Berkeley, CA | Aug 2015 (poster)
Botany, Edmonton, AB | Jul 2015 (invited talk)

Geographic processes drive diversification in different clades of Gesneriaceae
WSU Plant Sciences Retreat, Pullman, WA | Mar 2015 (poster)
WSU SBS Graduate Student Symposium, Pullman, WA | Feb 2015 (poster)

Research

Research Assistant Roalson Lab, Washington State University | Aug 2012 – Present
PI: Dr. Eric Roalson, School of Biological Sciences
Transcriptome sequencing, assembly, and characterization in *Achimenes* (Gesneriaceae)
Developmental genetics and biochemistry of flower color in *Achimenes* (Gesneriaceae)
Phylogenetics, biogeography, and diversification of Gesneriaceae
Global *Carex* Project, contributor
Construction and maintenance of high performance computational server

Independent Undergraduate Research Pond Lab, Whitworth University | Sep – Dec 2011
PI: Dr. Finn Pond, Biology Department
Bioinformatics and cloning of putative R-body genes from *Rhodospirillum rubrum*

NSF REU Fellow Xiang Lab, North Carolina State University | May – Aug 2011
PI: Dr. Jenny Xiang, Department of Plant and Microbial Biology
Fellowship in Synthetic Biology
Cloning and phylogenetic analysis of *SEP3* genes from dogwoods

Teaching

Graduate Teaching Assistant Washington State University | Aug 2013 – Present
Biol 332 Systematic Botany (x2)
Biol 120 Introductory Botany (x2)
Biol 106 Introductory Biology: Organismal Biology (x5)

Undergraduate Teaching Assistant Whitworth University | Feb 2010 – May 2012
Bio 363 Genetics
Bio 153 Plant Biology (x2)
Bio 141 General Biology I: Organismal Biology

Service + Outreach

Co-Lead Palouse Discovery Science Center Committee | Nov 2014 – Present
Organized hands-on workshops in plant science for children and families
Creation and implementation of permanent plant biology exhibit

Exhibit Lead Plant Science Day | Apr 2016
Organized and lead exhibit on plant pigments and pH for local children and families

Native Plant Guide Palouse Outdoor Science Day | Apr 2015
Organized and lead short hikes for children and families to identify and collect wildflowers

Greenhouse Tour Guide Biology Science Day | Oct 2014, 2015
Lead informational tours of the living plant collection at Washington State University

Recruitment Mentor Molecular Plant Sciences Graduate Program | Mar 2013, 2014
Lead invited recruits to and from faculty interviews

Skills

Programming
Languages: proficient in R, Python, Perl, Bash
Operating systems: Unix, Linux, MacOS, Windows

Bioinformatics and Genomics
Sequencing platforms: Illumina, Ion Torrent, Roche 454, Sanger
Assembly: Trinity, Velvet, Oases, SOAP, CLC
Analysis: BLAST, Bioconductor, GATK, KEGG, OrthoMCL
Phylogenetics: RAxML, MrBayes, BEAST, PAML, HyPhy
Machine learning: clustering, PCA, HMMER, WGCNA

Molecular Biology
DNA: extraction, purification, PCR, Southern blotting, cloning
RNA: extraction, purification, cDNA preparation, qPCR, RT-PCR, RNAseq library construction
Genetic engineering: RNAi
Culture: bacterial cell culture, plant tissue culture, micropropagation
Biochemistry: HPLC, TLC, pigment extraction and purification

Data Visualization
R (ggplot2), Python (matplotlib), Adobe Suite

Selected Awards

2016 NSF Doctoral Dissertation Improvement Grant ($19,323)
2015 Student Travel Grant, American Society of Plant Taxonomists ($300)
2012 Global Plant Sciences Initiative Fellowship, Washington State University ($10,000)
2011 NSF REU Fellowship in Synthetic Biology, North Carolina State University ($5,000)
2007 Trustee Scholarship, Whitworth University ($18,000 x4)