

SAMUEL E. FOX, PH.D.

Curriculum Vitae

Department of Botany and Plant Pathology
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PROFESSIONAL POSITIONS

Postdoctoral Research Associate (advised by Dr. Pankaj Jaiswal) Oregon State University (OSU), Corvallis, OR.	2011-present
Co-Lead Instructor; MCB 668 Bioinformatics and Genomics, OSU, Corvallis, OR.	Winter, 2012
Adjunct Instructor; Cell Biology and Genetics Laboratory Willamette University, Salem, OR	Fall, 2010 Spring, 2011

EDUCATION

Doctor of Philosophy (Ph.D.) in Molecular and Cellular Biology OSU, Corvallis, OR	8/2011
Master's Degree (MS) in Biology University of Central Florida (UCF), Orlando, FL	8/2006
Bachelor's Degree (BS) in Zoology OSU, Corvallis, OR	12/1997

EXPERIENCE

Post-Doctoral Scholar Advisor: Dr. Pankaj Jaiswal Projects: Global comparative analysis of salinity stress response in salt-tolerant and salt-sensitive rice (<i>Oryza sativa</i>). Sequencing, assembly, annotation and characterization of plant transcriptomes.	2011-present
Ph.D. Student Advisor: Dr. Todd Mockler Doctoral Project: Characterizing transcriptional landscapes in plants using high-throughput sequencing and genome tiling microarrays.	2006-2011
MS Student Advisor: Dr. Laurence von Kalm Thesis: "The mapping and characterization of <i>l8-5</i> , a gene which interacts with members of the RhoA signaling pathway in the development of the <i>Drosophila leg</i> ".	2004-2006

Research Assistant

2002-2004

Supervisor: Dr. Darlene Calhoun; USF, St. Petersburg, FL
 Research area: neutrophil specific chemokines in the neonate.

Research Assistant

2000-2002

Supervisor: Dr. Judy Cameron; OHSU, ONPRC, Portland, OR
 Research area: stress response and female reproductive function in the macaque monkey.

TEACHING

MCB 668. Bioinformatics and Genomics. Course Co-Instructor, OSU	Winter, 2012
Cell Biology and Genetics Laboratory, Adjunct Instructor, Willamette University	Fall, 2010 Spring, 2011
Plant Physiology Laboratory, TA, OSU	Spring, 2010
Introductory Biology Laboratory, TA, OSU	Winter and Spring, 2008 Spring, 2009
Cell Biology Laboratory, TA, UCF	Spring, 2006
Advanced Genetics Laboratory, TA, UCF	Fall, 2006
Introductory Genetics Laboratory, TA, UCF	Spring, 2005
Introductory Biology Laboratory, TA, UCF	Fall, 2004

STUDENT AND TECHNICIAN ADVISING AND TRAINING

As the first Ph.D. student in the laboratory of Dr. Todd Mockler, I peer-mentored many undergraduate and graduate students in laboratory methods, computational techniques, and scientific writing, including: Matt Geniza, undergraduate Howard Hughes Medical Institute Fellowship Recipient (currently Ph.D. student MCB program, OSU); Eric Rowley, technician (currently a Ph.D. student in Todd Mockler's lab); Jessica Murray, undergraduate; Jennifer Long, undergraduate; Jared Streich, undergraduate Howard Hughes Medical Institute Fellowship Recipient (Currently Ph.D. student at Australian National University)

As a Post-doctoral scholar in the laboratory of Dr. Pankaj Jaiswal, I have mentored two high school student volunteers, one undergraduate student and two graduate students: Athena and Serena Smith, high school student volunteers; Abigail Sage, undergraduate honor's student; Zhian Kamvar, (Botany and Plant Pathology graduate student (currently rotating in another laboratory); Matt Geniza, (1st year Ph.D. student, MCB program, OSU)

OUTREACH

Guest instructor	2010
Fifth Grade Science Class, All Saints Elementary School, Portland, OR	
"Cells and body systems"	
Instructor: Mr. Kevin Baumbach.	

Guest instructor Science Education Partnerships Workshop, OSU “Teaching genes and genomes to high school students”	2008
Guest instructor BI399 Special Topics, Genetics Lab. OSU “Genome and transcriptome sequencing” Instructor: Dr. Kari van Zee	2008
Guest instructor Fifth Grade Science Class, All Saints Elementary School, Portland, OR “The immune system” Instructor: Mr. Kevin Baumbach	2007

TRAINING COURSES/WORKSHOPS ATTENDED

Success in the College Classroom (MB 699), OSU Course aimed at teaching at the college level. Topics: Classroom management, syllabus and rubric design and learning styles	2009
Seminar in GTA Training & Development (AHE 507), OSU Topics: Training Teaching Assistants teaching methods for Biology Laboratories	2009
Science Education Partnerships Workshop, OSU Topics: Teaching science to high school students	2008
Genome Annotation Workshop. The Institute for Genome Research, Rockville, MD Topics: NSF funded training workshop aimed at the annotation of plant genomes.	2007
Graduate Teaching Development Conference, UCF Topics: Teaching and learning theories, and syllabus and course design	2005

RESEARCH GRANT SUPPORT

Pending:

Co-PI. The Consortium for Plant Biotechnology Research Discovery of drought-tolerance traits in a drought tolerant bioenergy crop model system <u>\$520,000.</u>	2013-2015
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REFEREED JOURNAL ARTICLES

1. **Fox SE**, Preece J, Kimbrel J, Sage A, Marchini G, Cruzan M, Jaiswal P. Sequencing, assembly and characterization of a transcriptome resource for *Brachypodium sylvaticum*. Accepted, **Applications in Plant Sciences**.
2. **Fox SE**, Christie M, Marine M, Mockler TC, Blouin M. *De novo* assembly and characterization of steelhead trout (*Oncorhynchus mykiss*) transcriptome and analysis of gene expression in hatchery and wild fish. Under review. **BMC Genomics**.

3. Rowley ER, **Fox SE**, Bryant DW, Priest HD, Mehlenbacher SK, Mockler TC. Transcriptome analysis of European hazelnut (*Corylus avellana*). **Crop Science**. November, 2012.
4. Li C, Rudi H, Stockinger EJ, Cheng H, Cao M, **Fox SE**, Mockler TC, Westereng B, Fjellheim S, Rognli OA, Sandve SR. Comparative analyses reveal potential uses of *Brachypodium distachyon* as a model for cold stress responses in temperate grasses. **BMC Plant Biology**. May, 2012.
5. Castoe TA, **Fox SE**, de Konig APJ, Poole AW, Daza JM, Smith EN, Mockler TC, Secor S, Pollock DD. A multi-organ transcriptome resource for the Burmese Python (*Python molurus bivittatus*). **BMC Research Notes**. August, 2011.
6. Cumbie JS, Kimbrel JA, Di Y, Schafer DW, Wilhelm LJ, **Fox SE**, Sullivan CM, Curzon AD, Carrington JC, Mockler TC, Chang JH. GENE-counter: a computational and statistical pipeline for assessing RNA-Seq data for genome- wide expression differences. **PLoS One**. October, 2011.
7. Castoe TA, Hall KT, Guibotsy Mboulas ML, Gu W, de Koning APJ, **Fox SE**, Poole AW, Daza JM, Vemulapalli V, Mockler TC, Smith EN, Feschotte C, Pollock DD. Discovery of highly divergent repeat landscapes in snake genomes using high throughput sequencing. **Genome Biology and Evolution**. May, 2011.
8. Filichkin SA, Priest HD, Dharmawardhana P, Jaiswal P, Breton G, **Fox SE**, Chory J, Michael TP, Kay S, Mockler TC. Comparative diurnal and circadian transcript profiling in rice, poplar and Arabidopsis. **PLOS One**. June, 2011.
9. Peremyslov VV, Mockler TC, Filichkin SA, **Fox SE**, Jaiswal P, Makarova KS, Koonin EV, Dolja V. Expression, splicing, and evolution of the myosin gene family in plants. **Plant Physiology**. January 13, 2011.
10. Shulaev V,...**Fox SE**,...[71 total authors],...Folta KM. The genome of woodland strawberry (*Fragaria vesca*). **Nature Genetics**. December 26, 2010.
11. Vogel JP,...**Fox SE**...[134 total authors],...Baxter I. Genome sequencing and analysis of the model grass *Brachypodium distachyon*. **Nature**. February 11, 2010.
12. Bryant DW, **Fox SE**, Rowley ER, Priest HD, Wong W-K, Mockler TC. Discovery of SNP markers in expressed genes of hazelnut. **Acta Horticulturae. International Symposium on Molecular Markers in Horticulture**. April 30, 2010.
13. Priest HD, **Fox SE**, Filichkin SA, Mockler TC. Utility of next-generation sequencing for analysis of horticultural crop transcriptomes. **Acta Horticulturae. International Symposium on Molecular Markers in Horticulture**. April 30, 2010.
14. Filichkin SA, Priest HD, Givan SA, Shen R, Bryant DW, **Fox SE**, Wong WK, Mockler TC. Genome-wide mapping of alternative splicing in *Arabidopsis thaliana*. **Genome Research**. 20(1):45-58. January, 2010.
15. Bethea CL, Pau FK, **Fox SE**, Hess DL, Berga SL, Cameron JL. Sensitivity to stress-induced reproductive dysfunction linked to activity of the serotonin system. **Fertility and Sterility**. 60(7):448-450, July, 2005.
16. Lu W, Maheshwari A, Misiuta I, **Fox SE**, Chen N, Zigova T, Christensen RD, Calhoun DA. Neutrophil-specific chemokines are produced by astrocytic cells but not by neuronal cells. **Brain Research. Developmental Brain Research**. 155(2):127-34. March 31, 2010.
17. **Fox SE**, Lu W, Maheshwari A, Christensen RD, Calhoun DA. The effects and comparative differences of

neutrophil specific chemokines on neutrophil chemotaxis of the neonate. **Cytokine**. 29:135-40. February, 2005.

18. Maheshwari A, Lacson A, Lu W, **Fox SE**, Barleycorn AA, Christensen RD, Calhoun DA. Interleukin-8/CXCL8 forms an autocrine loop in fetal intestinal mucosa. **Pediatric Research**. 56(2):240-9. August, 2004.
19. Kotto-Kome AC, **Fox SE**, Yang BB, Christensen RD, Calhoun DA. Evidence that the granulocyte colony-stimulating (G-CSF) receptor plays a role in the pharmacokinetics of G-CSF and PEG-G-CSF using a CSF-R KO model. **Pharmacological Research**. 50:55-8. July, 2004.

MANUSCRIPTS IN PREPARATION

1. **Fox SE**, Geniza, M, Preece J, Sage A, Jaiswal P. *De novo* Transcriptome Assembly and Characterization of the Dark to Light Transition of *Triticum monococcum* (DV92 and G3116). Manuscript in preparation.
2. Christie M, **Fox SE**, Marine M, Blouin M. Gene expression differences among hatchery and wild steelhead (*Oncorhynchus mykiss*). Manuscript in preparation.
3. **Fox SE**, Priest HD, Murray JR, Mockler TC. Characterization of the *Brachypodium distachyon* transcriptome in response to cold, salt, and drought abiotic stress. Manuscript in preparation.

BOOK CHAPTER

1. **Fox SE**, Filichkin, S, Mockler TC. Applications of ultra-high throughput sequencing. Book Chapter; **Methods in Molecular Biology: Plant Systems Biology**. 553:79-108. 2009.

INVITED TALKS/LECTURES

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| <ol style="list-style-type: none"> 1. American Society of Plant Biologists Meeting (ASPB). Austin, TX
Workshop presentation
'Analysis of the <i>Brachypodium distachyon</i> transcriptome in response to abiotic stress' 2. Plant and Animal Genome Conference (PAG), Abiotic stress workshop, San Diego, CA
Workshop presentation
'Global gene expression analysis of <i>Brachypodium distachyon</i> in response to abiotic stresses' 3. MCB 555, Genome Expression and Regulation, OSU
Guest lecture
'Chromatin modification enzymes and ES cell-specific gene expression' 4. MCB 525. Techniques in Molecular Biology, OSU
Guest lecture
'Gene calling and annotation' 5. Willamette University Science Colloquium, Willamette University
Seminar presentation
'Plant Transcriptomics: Global survey of diurnal/circadian and abiotic stress gene expression' | <p>2012</p> <p>2012</p> <p>2011</p> <p>2011</p> <p>2011</p> |
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| 6. CGRB Methods and Computational Tools Workshop, OSU
Seminar presentation
RNA-seq methodologies: Tips for sample preparation and sequencing on the Illumina sequencing platform | 2011 |
| 7. PAG Conference, <i>Brachypodium</i> workshop
Workshop presentation
'A universal genome array and transcriptome profiling atlas for <i>Brachypodium distachyon</i> ' | 2010 |
| 8. PAG Conference, Affymetrix workshop
Workshop presentation
'The design of a universal genome/gene expression microarray for <i>Brachypodium distachyon</i> ' | 2010 |
| 9. Pioneer Hi-Bred International Inc., Des Moines, IA
Seminar presentation
'Splicing Regulation and Transcriptome Landscapes in Plants' | 2009 |

SELECTED POSTER PRESENTATIONS (32 since 2005)

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| Genome Informatics Meeting, Cambridge, UK
Fox SE , Hanumappa M, Sage A, Dharmawardhana P, Murray JR, Priest HD, Mockler TC, Jaiswal P
'Comparative analysis of drought and salt stress in grasses' | 2012 |
| PAG Conference
Fox SE , Murray JR, Priest HD, Streich J, Mockler TC
' <i>Brachypodium distachyon</i> transcriptomic responses to different light qualities' | 2011 |
| PAG Conference
Fox SE , Priest HD, Bryant DW, Wilhelm L, Mockler TC
'Transcriptional profiling atlas for <i>Brachypodium distachyon</i> ' | 2010 |
| New Phytologist Conference, Mt. Hood, OR
Fox SE , Filichkin S, Priest H, Shen R, Givan S, Sullivan C and Mockler TC
'Splicing regulation and transcriptome landscapes in plants' | 2009 |
| PAG Conference
Fox SE , Filichkin S, Shen R, Givan, S Priest H, Sullivan C, and Mockler TC
'Empirical annotation of the <i>Brachypodium distachyon</i> transcriptome' | 2008 |

AWARDS

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| College of Agricultural Sciences, Oregon State University, Distinguished Student Award | 2011 |
| Larry Moore Award for Plant Pathology Research | 2010 |
| Anita S. Summers Graduate Student Travel Award | 2009 |
| New Phytologist Symposium Award | 2008 |
| Botany and Plant Pathology Graduate Students Association Travel Award | 2008 |

Sigma XI Grant in Aid of Research Award	2007
National Science Foundation/TIGR Genome Annotation Workshop Award	2007
Fuel Ethanol Workshop Grant	2007
NASA Group Achievement Award and F.I.T. Scientific Research Team Award	2006

SERVICE

Graduate Student Admissions Committee Molecular and Cellular Biology Oregon State University Corvallis, OR	2009, 2010, and 2011
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ORGANIZATIONS/ACTIVITIES

American Society of Plant Biologists	2011-present
The RNA Society	2010-present
Sigma XI	2007-present
The American Association for the Advancement of Science	2007-present
Biology Graduate Student Association, Secretary. UCF	2004-2006