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EDUCATION AND RESEARCH

Postdoctoral Fellowship (June 2016-present), *University of Washington*, with Christine Queitsch.

Project: Highly accurate short tandem repeat genotyping reveals heritable variation and signatures of selection

PhD in Genome Sciences (June 2016), *University of Washington*, with Christine Queitsch and Elhanan Borenstein.

Thesis: "Observing the effects of epistasis on various scales of the evolutionary process."

Project 1: Co-evolutionary analysis of bacterial Hsp90 function.
Project 2: Epistatic genetic architecture induced by ELF3 polyQ variation.
Project 3: Evolutionary assembly rules of prokaryotic genomes.
Project 4: Short tandem repeat variation's role in genetic architecture.
Project 5: The role of ELF3 polyQ variation in *A. thaliana* temperature sensing.

BA Biology (2008), *Reed College*. Undergraduate study with Robert Kaplan.
Thesis: "Microevolution of *Gasterosteus aculeatus* in the Johnson Creek watershed."

PUBLICATIONS

(all available upon request; see Pubmed, bioRXiv, Google scholar)

- **Press MO**, Queitsch C. "The variable ELF3 polyglutamine mediates complex epistatic interactions." *Genetics* (In Press, bioRXiv).
- **Press MO**, Lanctot A, Queitsch C (2016). "PIF4 and ELF3 act independently in *Arabidopsis thaliana* thermoresponsive flowering." *PLOS ONE* 11(8): e0161791.
- **Press MO**, Queitsch C, Borenstein E (2016). "Evolutionary assembly patterns of prokaryotic genomes." *Genome Research* 26: 826-833.
- Carlson KD, Sudmant PH, **Press MO**, Eichler EE, Shendure J, Queitsch C (2015). "MIPSTR: a method for multiplex genotyping of germ-line and somatic STR variation across many individuals." *Genome Research* 25(5):750-761.
- Rival P*, **Press MO***, Bale J*, Grancharova T, Undurraga SF, Queitsch C (2014). "The conserved *PFT1* tandem repeat is crucial for proper flowering in *Arabidopsis thaliana*" *Genetics* 198(2): 747-754.
- **Press MO**, Carlson KD, Queitsch C (2014). "The overdue promise of short tandem repeat variation for heritability." *Trends in Genetics* 30(11) 504-512.
- **Press MO***, Li H*, Creanza N, Kramer G, Queitsch C, Sourjik V, Borenstein E (2013). "Genome-scale co-evolutionary analysis identifies functions and clients of bacterial Hsp90." *PLOS Genetics* 9(8): e1003631
- Undurraga S, **Press MO**, Legendre M, Bujdoso N, Bale J, Hui W, Davis SJ, Verstrepen K, Queitsch C (2012). "Background-dependent effects of polyglutamine variation in the *Arabidopsis thaliana* gene *ELF3*." *PNAS* 109(47):19363-7.
- Ranjitkar P, **Press MO**, Yi X, Baker R, MacCoss MJ, Biggins S (2010). "An E3 ubiquitin ligase prevents ectopic localization of the centromeric histone H3 variant via the centromere targeting domain." *Molecular Cell* 40(3): 455-64.

*: equal contribution

MANUSCRIPTS IN PREPARATION

- **Press MO**, Roarty AR, Carlson KD, Queitsch C. "Massive variation in functional short tandem repeats in *Arabidopsis thaliana.*"
- **Press MO**, Queitsch C. "Epistasis and additivity: historical perspectives."

SELECTED PRESENTATIONS

- Talk: Thermomorphogenesis Meeting 2016: "PIF4 and ELF3 Act Independently in Arabidopsis thaliana Thermoresponsive Flowering". Halle, Germany
- Talk: The Allied Genetics Conference, July 2016: "The variable ELF3 polyglutamine is an epistatic hub." Orlando, FL
- Talk: Congress of the Society for Molecular Biology and Evolution, July 2015: "Evolutionary Assembly Patterns of Prokaryotic Genomes." Vienna, Austria
- Poster: Gordon Research Conference, June-July 2015: "The variable ELF3 polyglutamine hubs an epistatic network." Easton, MA
- Talk: 6th International Conference on the Hsp90 chaperone machine, September 2012: "Evolutionary Inference of bacterial Hsp90 functions." Les Diablerets, Switzerland

FELLOWSHIPS AND AWARDS

- 2015: UW Graduate School Fund for Excellence and Innovation Travel Grant
- 2011-2013: NIH NHGRI Genomics Training Grant 2T32HG35-16
- 2008: Phi Beta Kappa (Reed College)
- 2007-8: Miller Undergraduate Research Foundation grant, Reed College
- 2004-8: 3 Commendations for Excellence in Scholarship, Reed College

PROFESSIONAL EXPERIENCE

Postdoctoral fellow, University of Washington, Department of Genome Sciences, June 2016-present. Supervisor: Dr. Christine Queitsch.

- Optimized sequencing assays for genotyping short tandem repeats (STRs).
- Optimized software pipelines for high-throughput sequencing
- Performed functional and evolutionary analysis of natural STR variation in *A. thaliana*.

Graduate Research Assistant, University of Washington, Department of Genome Sciences, 2010-June 2016. Advisors: Dr. Christine Queitsch, Dr. Elhanan Borenstein

- Developed and applied computational methods for studying bacterial genome evolution
- Developed and applied genetic analysis methods for *Arabidopsis thaliana*
- Mentored, trained, and supervised junior students, volunteers, and undergraduates
- Wrote several papers published in leading journals
- Wrote training and large (R01) grants for submission to NIH and NSF
- Presented research at international meetings

Research Technician, Fred Hutchinson Cancer Research Center, Basic Sciences Division, 2008-2010. Supervisor: Dr. Sue Biggins

- Constructed yeast strains via cloning, crossing, and transformation
- Characterized protein function with biochemical, genetic, and cell biology techniques

- Managed laboratory stocks, supervised lab helpers, acted as radiation safety coordinator

REU, Oregon State University Eco-Informatics Summer Institute. Summer 2007
- Collected, analyzed, and presented Douglas-fir dendrochronological data.

Biology Tutor, Reed College. August 2005-May 2008
- Tutored undergraduates in introductory biology, assisted in laboratory sections

TEACHING AND MENTORING

University of Washington
- **Teaching assistant** (GENOME 351: Human Genetics for non-majors), UW. Spring 2014
- **Teaching assistant** (GENOME 371: Introductory Genetics), UW. Fall 2012
- **Research mentor,** I was the direct supervisor for three members of the Queitsch lab: Katie Uckele (volunteer, 2014-2015), Amy Lanctot (rotation student, Spring 2015), Ashley Roarty (rotation student, Winter 2016).

Reed College
- **Tutor** (Biology 101/102: Introductory Biology), 2005-2008

PEER REVIEW:

- **Reviewer:** *Nature Communications, Matters.*
- **Sub-reviewer for C. Queitsch:** *PNAS*, *Nature Methods, Human Genetics, PLOS Genetics*.
- **Sub-reviewer for E. Borenstein:** *RECOMB* 2012, *Scientific Reports.*

SCHOLARLY SOCIETY MEMBERSHIPS

Society for Molecular Biology and Evolution. (2015-present)
Genetics Society of America. (2016-present)

SERVICE AND OUTREACH ACTIVITIES

- **Co-instructor,** GRE preparation course. July 2014, July 2015, (short class for underrepresented minority undergraduates).
- **Organizer**, 2012 NHGRI UW Genome Training Grant Symposium.
- **Instructor**, Basic ideas of bioinformatics, June 2012, (short class for HS teachers).
- **Departmental coordinator**, 2012 Science Education Partnership, Genome Sciences.
- **Science blogging,** 2013-present, http://swampthingscience.com/ (sparsely updated; life sciences in terms of comics, occasional digressions against scientism).
- **Restoration volunteer,** Adopt-a-Stream Foundation, (Summer-Winter 2005). Wetlands restoration field work.
- **Volunteer,** Students for Empowering, Educating, Diversity and Service (SEEDS), Reed College chapter (2004-2008). Taught middle school students about wetland restoration.

REFERENCES

- **Dr. Christine Queitsch, University of Washington Dept. Genome Sciences.** **queitsch@uw.edu**

- **Dr. Elhanan Borenstein, University of Washington Dept. Genome Sciences.** **elbo@uw.edu**

- **Dr. Joe Felsenstein, University of Washington Dept. Genome Sciences.**
  joe@gs.washington.edu

- **Dr. Sue Biggins, Fred Hutchinson Cancer Research Center Basic Sciences Division.**
  sbiggins@fhcrc.org