

JONATHAN SHORTT

E-mail: jonathan.shortt@ucdenver.edu

Education:

PhD, Human Medical Genetics and Genomics, August 2018

University of Colorado Denver | Anschutz Medical Campus, Aurora, CO

- Dissertation: Variation in the Genome: Insights into Genome Evolution and Population History

BS, Genetics and Biotechnology, April 2008

Brigham Young University (BYU), Provo, Utah

- I also did extensive coursework in French, completing all requirements for the French Studies major

Work Experience:

Research Instructor

June 2012 – present

Anschutz Medical Campus, Division of Biomedical Informatics and Personalized Medicine, Aurora, CO

- independently and collaboratively design, validate, and implement ancestry pipeline for Colorado Biobank participants
- generate, record, analyze, interpret, and report data
- present research in formal and informal presentations and peer-reviewed journals

Graduate Student/Research Assistant

Aug 2012 – Jun 2018

Anschutz Medical Campus, Department of Biochemistry and Molecular Genetics, Aurora, CO

- My specific research areas focused on: 1) the identification of ancient repeats in the human genome, 2) genetic population structure of the parasitic worm *Schistosoma japonicum*, and 3) genetic population structure of human populations.
- independently and collaboratively design, validate, and implement both computational algorithms and bench-top analyses
- generate, record, analyze, interpret, and report data
- present research in formal presentations and peer-reviewed journals
- order and maintain laboratory supplies and reagents, track and report expenditures and purchase card transactions

Plant Pathogen Laboratory Technician/Technical Lead

Oct2008 - Aug 2012

Omnilytics Inc., Salt Lake City, UT

- analyze a library of bacteriophage for lytic activity against specific plant pathogens
- analyze, review, record, and report data
- train other technicians on and oversee routine lab processes from plant tissue sampling through fermentation of bacteriophage product
- assist in design and execution of product design and development plans, including molecular research on bacteriophage
- write, review, and test new and existing SOP's
- order and maintain supplies of media and other inventory for the lab
- develop new bacteriophage library for treatment of *Pseudomonas syringae* pv. actinidiae

Corn Breeding Intern *May 2008 - Oct 2008*

Monsanto, Stromsburg, NE

- analyze drought trial data to identify drought-resistant germplasm
- assist in the field aspects of corn breeding from planting to pollination crew supervision

Research Assistant *Jan 2007 - Apr 2008*

BYU Plant Genetics Laboratory, Provo, UT

- studied transcriptional responses of allotetraploid cotton species to salt stress
- method development for high-throughput phylogeny reconstruction

Teaching:

Mentor *Oct 2012 – June 2018*

- provide mentored research experience in diverse evolutionary biology projects to 3 high school students, and two undergraduate students

Teaching Assistant *Jan 2007 - Apr 2008*

·BYU Plant Genetics Laboratory, Provo, UT

- develop and teach protocols given to students
- guide students through the process of identifying an unknown gene
- filmed video protocols showing numerous lab techniques
- manage course website, prepare lecture materials, assist in various other class-related tasks

Publications:

Jiang Z, Gera L, Mant CT, Hirsch B, Yan Z, Shortt JA, Pollock DD, Qian Z, Holmes KV, Hodges RS. Platform technology to generate broadly cross-reactive antibodies to α -helical epitopes in hemagglutinin proteins from influenza A viruses. *Biopolymers*. 2016 Mar;106(2):144-159. doi: 10.1002/bip.22808. PubMed PMID: 26799790.

Shortt JA, Card DC, Schield DR, Liu Y, Zhong B, Castoe TA, Carlton EJ, Pollock DD. Whole Genome Amplification and Reduced-Representation Genome Sequencing of *Schistosoma japonicum* Miracidia. *PLoS Negl Trop Dis*. 2017 Jan 20;11(1):e0005292. doi: 10.1371/journal.pntd.0005292. eCollection 2017 Jan. PubMed PMID: 28107347; PubMed Central PMCID: PMC5287463.

Pollock DD, Pollard ST, Shortt JA, Goldstein RA. Evolutionary Biology: Self/Nonself Evolution, Species and Complex Traits Evolution, Methods and Concepts. Pontarotti P, editor. Cham: Springer International Publishing; 2017. Mechanistic Models of Protein Evolution; p.277-296.

Pasquesi GIM, Adams RH, Card DC, Schield DR, Corbin AB, Perry BW, Reyes-Velasco J, Ruggiero RP, Vandewege MW, Shortt JA, et al. Squamate reptiles challenge paradigms of genomic repeat element evolution set by birds and mammals. *Nat Commun*. 2018 Jul

17;9(1):2774. doi: 10.1038/s41467-018-05279-1. PubMed PMID: 30018307; PubMed Central PMCID: PMC6050309.

Severson AL*, Shortt JA*, Mendez FL, Wojcik GL, Bustamente CD, Gignoux CR. SNAPPY: Single Nucleotide Assignment of Phylogenetic Parameters on the Y chromosome. (submitted November 2018)

Leaton LA, Shortt JA, Kichula KM, Tao S, Nemat-Gorgani N, Mentzer AJ, Oppenheimer SJ, Deng ZH, Hollenbach JA, Gignoux CR, Guethlein LA, Parham P, Carrington MN, Norman PJ. Comparative Genetics of NK Cell Receptor Families in relation to MHC Class I Ligands and Their Function. (submitted December 2018)

Shortt, J.A. et al. Finding and extending ancient simple sequence repeat-derived regions in the human genome. (in preparation, planned submission in January 2019)

Languages:

Proficient in English and French
