Ellis Anderson – Curriculum Vitae

Education

Bachelor of Science in Genetics and Genomics, June 2016
University of California Davis

Research Experience

I**ntern, Maloof Lab at University of California, Davis** 12/2015 – 5/2017

Worked on the analysis of previously collected data from a bulk-segregant analysis of a tomato mutant. This included mapping of genomic reads using BWA and STAR aligners, SNP calling using Freebayes, statistical analysis in R, and SNP effect analysis using SnpEff. The last step of the project included re-mapping reads in search of large deletions as well as PCR amplification of potential deletions.

Intern, Korf Lab at University of California, Davis 3/2016 - 7/2016

Researched Ultra Conserved Elements in the human genome before beginning a BLAST analysis of these elements across the Human and Chicken genome using a Python script.

Presentations

Anderson, E. Use of bulk-segregant analysis to identify a 300kb region containing an unidentified mutation in Tomato mutant, *tep-1*. Presented at Maloof Lab weekly meeting.

Important Classes

BIS 180L, Genomics Lab Computational approaches to model and analyze biological information about genomes, transcriptomes, and proteomes. Topics include genome assembly and annotation, mRNA and small RNA profiling, proteomics, protein-DNA and protein-protein interactions, network analysis, and comparative genomics.

MCB 160L, Principles of Genetics Lab Laboratory work in basic and molecular genetics including gene mapping, isolation and characterization of mutants in eukaryotic model systems, reverse genetics, gel electrophoresis, recombinant DNA techniques, and PCR. Includes work with *A. thaliana, C. elegans, S. cerevisiae* and *D. melanogaster* as well as a mock research paper outlining an RNAi knockdown experiment in *C. elegans*.

Auxiliary Coursera Coursework

Data Scientist's Toolbox, John Hopkins Introductory material on Git, Github, R and markdown. Focuses on reproducibility and the basic tools used in science.

R Programming, John Hopkins Includes basic to intermediate work in R. Focuses on writing programmatic functions as well as debugging, and organizing code

Getting and Cleaning Data, John Hopkins Covers different file formats and ways to obtain data, including the web and APIs. Also covers data cleaning and formatting.

Laboratory Skills

Fluorescent Microscopy Used fluorescent microscopes to identify the number of DAPI staining bodies in gravid *C. elegans* hermaphrodite oocytes.
Agarose Gel Prep and Electrophoresis Confirmed plasmid DNA transformation into *E. coli* strain using electrophoresis.
PCR Amplified portions of DNA from gel electrophoresis. Also amplified sections of DNA to confirm potential deletion sites in a tomato mutant.
DNA Purification Purified excised bands of digested vector and insert DNA for ligation and transformation.
Read Mapping Trimmed, removed barcodes and mapped reads from 4 days of Tomato tissue collection using BWA and STAR aligners.
Statistical Analysis in R Analyzed SNPs from a Tomato mutant in regards to differing parental genome contribution using the R statistics package.
Unix/Linux Command Line Comfortable with most aspects of command line tools including environments and data processing tools like grep.

Extracurricular Activities

Outdoor Adventures at UC Davis, Guide, 2015 - Present
Genetics Club at UC Davis, Member, 2012 - 2016
UC Davis Climbing Club, Member, 2013 - 2016
UC Davis Cycling Team, Captain, 2012 - 2013

References

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