

Jennifer Hamlin

BIOINFORMATICIAN

Respiratory Diseases Laboratory Branch, Centers for Disease Control and Prevention, Atlanta, GA, USA

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I am a scientist with 10+ years of experience in classical genetics, genomics, and evolutionary biology. My training includes using a range of tools - bioinformatics, population genetics, molecular evolution all with experimental design in mind. Over the years as my computational skills increased, the genomes of the organisms I work on have gotten smaller. Now, I work at the interface of public health, application development, and understanding organisms that can cause harm to humans with an emphasis of developing reproducible research.

Education

University of Georgia

PH.D. IN GENETICS

Athens, GA

2015

University of North Carolina - Asheville

B.S. IN BIOLOGY

Asheville, NC

2010

Appointments

Centers for Disease Control and Prevention

BIOINFORMATICIAN WITH DIVISION OF BACTERIAL DISEASES

Atlanta, GA

20-Nov–Current

- Maintenance and updating Legionella databases for sequencing types
- Developed pipeline for processing Ureaplasma genome sequences
- Migrated bioinformatic work to use github as a lab notebook

Centers for Disease Control and Prevention

ASSOCIATION OF PUBLIC HEALTH LABORATORIES BIOINFORMATICS FELLOW

Atlanta, GA

19-Sep–20-Nov

- Developing tinselR - an Rshiny application for annotating outbreak trees; hosted on github
- Worked with scientific computing group for tinselR to be hosted on CDC internal server
- 30-day detail on Routine Reporting for COVID-19 Response (June - July 2020)

University of Georgia

BENSASSON LAB POST-DOCTORAL RESEARCHER

Athens, GA

17-Oct–19-Aug

- Directed collaborative research with graduate and undergraduate students
- Collated and streamlined genome mapping for 1000 Saccharomyces cerevisiae isolates as lab resource
- Used an iterative approach to assign 400 genomes to well-defined populations using best practices for population genomics and phylogenetics
- Resolved haplotypes for Candida albicans genomes with PacBio sequencing

Indiana University

MOYLE LAB POST-DOCTORAL RESEARCHER

Bloomington, IN

15-Jun–17-Sep

- Directed research with faculty, graduate, and undergraduates at IU and with two external universities
- Genome-wide study of factors that determine the likelihood of introgression for Solanum species
- Streamlined genotyping to generate biological replicates. Validate data accuracy using technical replicates along with statistical analyses
- Used linear mixed models and ANOVA to identify differences in targeting, rates, and floral trait differences with biological and technical replicates for a large-scale crossing project

Skills

Analytical

DATA SCIENCE, EXPERIMENTAL DESIGN, NEXT GENERATION SEQUENCING, GENOMICS, HIGH PERFORMANCE COMPUTING, PROJECT MANAGEMENT, QUALITY CONTROL, REPRODUCIBLE RESEARCH, STATISTICS, TECHNICAL WRITING AND DOCUMENTATION

Programming

AWK - PROFICIENT, BASH - EXPERT, PYTHON - EXPERT, R - EXPERT, RMARKDOWN - EXPERT

Tools

BCFTOOLS, BLAST, BWA, CONDA/ANACONDA, FASTQC, GIT/GITHUB, PROKKA, QUAST, RSHINY, SAMTOOLS, SEQTK, SHOVILL, SNIPPY, SPADES, TRIMMOMATIC, VCFTOOLS

Publications

JAP Hamlin, MS Hibbins, LC Moyle

ASSESSING BIOLOGICAL FACTORS AFFECTING POSTSPECIATION INTROGRESSION

Evolution Letters

2020

JAP Hamlin, GB Dias, CM Bergman, D Bensasson

PHASED DIPLOID GENOME ASSEMBLIES FOR THREE STRAINS OF CANDIDA ALBICANS FROM OAK TREES

G3

2019

JAP Hamlin, NA Sherman, LC Moyle

TWO LOCI CONTRIBUTE EPISTASTICALLY TO HETEROSPECIFIC POLLEN REJECTION, A POSTMATING ISOLATING BARRIER BETWEEN SPECIES

G3

2017

JAP Hamlin, TJ Simmonds, ML Arnold

NICHE CONSERVATISM FOR ECOLOGICAL PREFERENCE IN THE LOUISIANA IRIS SPECIES COMPLEX

Biological Journal of the Linnean Society

2017

JAP Hamlin, ML Arnold

NEUTRAL AND SELECTIVE PROCESSES DRIVE POPULATION DIFFERENTIATION FOR IRIS HEXAGONA

Journal of Heredity

2015

ML Arnold, AN Brothers, JAP Hamlin, SJ Taylor, NH Martin

DIVERGENCE-WITH-GENE-FLOW—WHAT HUMANS AND OTHER MAMMALS GOT UP TO

Reticulate Evolution

2015

JAP Hamlin, ML Arnold

DETERMINING POPULATION STRUCTURE AND HYBRIDIZATION FOR TWO IRIS SPECIES.

Ecology and Evolution

2014

ML Arnold, JAP Hamlin, AN Brothers, ES Ballerini

NATURAL HYBRIDIZATION AS A CATALYST OF RAPID EVOLUTIONARY CHANGE

Rapidly evolving genes and genetic systems

2012

ML Arnold, ES Ballerini, AN Brothers, JAP Hamlin, CDA Ishibashi, ...

THE GENOMICS OF NATURAL SELECTION AND ADAPTATION: CHRISTMAS PAST, PRESENT AND FUTURE (?).

Plant Ecology & Diversity

2012

K Marshall, J Hamlin, M Armstrong, J Mendoza, C Lee, D Pieri, R Rivera, ...

SCIENCE FOR A SOCIAL REVOLUTION: ECOLOGISTS ENTERING THE REALM OF ACTION

The Bulletin of the Ecological Society of America

2011

Presentations

Talks

tinselR – An RShiny App for Phylogenetic Tree Annotation

CDC DATA VIZ DAY

Atlanta, GA

2020

Start Writing Manuscripts in Rmarkdown

GENOMICS INTEREST GROUP - TECHINCAL

Atlanta, GA

2020

Build Shiny Apps

WARNELL SCHOOL OF FORESTRY & NATURAL RESOURCES DATA MANIPULATION AND MANAGEMENT COURSE

Athens, GA

2018

Population Genomics of wild and domesticated yeast.

UNIVERSITY OF GEORGIA ENTHUSIASTS OF DIVERSITY GENETICS AND EVOLUTION

Athens, GA

2018

No Easy D: Little Evidence for Introgression from Whole-Genome Data in Wild Solanum.

SOCIETY FOR THE STUDY OF EVOLUTION

Portland, OR

2017

Epistasis for Postmating Prezygotic Isolation.

SOCIETY FOR THE STUDY OF EVOLUTION

Austin, TX

2016

Spatial, temporal, and genome-wide patterns of differentiation for the Louisiana iris species complex.

INDIANA UNIVERSITY BROWN BAG

Bloomington, IN

2015

What Drives Phenotypic and Genetic Divergence for Iris hexagona?

SOCIETY FOR THE STUDY OF EVOLUTION

Raleigh, NC

2014

Comparative Phylogeography of Two Louisiana Irises.

SOCIETY FOR THE STUDY OF EVOLUTION

Snowbird, UT

2013

Posters

Tinsel - an Rshiny app for phylogenetic tree annotation

ASSOCIATION OF PUBLIC HEALTH LABORATORIES ANNUAL MEETING

Portland, OR

2020

Tinsel - an Rshiny application for annotating outbreak trees

INTEGRATED FOODBORNE OUTBREAK RESPONSE AND MANAGEMENT

Atlanta, GA

2020

Genetic admixture and the origins of clinical Saccharomyces cerevisiae yeast.

FUNGAL GENETICS CONFERENCE

Pacific Grove, CA

2019

Clinical Saccharomyces cerevisiae are admixed domesticated yeast.

CELLULAR AND MOLECULAR FUNGAL BIOLOGY: GORDON RESEARCH CONFERENCE

Holderness, NH

2018

Higher Prevalence of Genetic Exchange Given Geographic Proximity.

SOUTHEASTERN POPULATION ECOLOGY & EVOLUTIONARY GENETICS.

Laural Hill, NC

2017

Two Loci Contribute Epistatically to Heterospecific Pollen Tube Rejection, a Postmating Isolating Barrier Between Species.

SOLANACEAE CONFERENCE

Davis, CA

2016

What Drives Phenotypic and Genetic Divergence for Iris hexagona?

BOTANICAL SOCIETY OF AMERICA

Boise, ID

2014

Comparative Phylogeography of Two Louisiana Iris Species: Iris fulva and Iris brevicaulis.

AMERICAN GENETIC ASSOCIATION

Guanajuato, Mexico

2011

R-Packages

tinselR - An R package for visualizing and annotating phylogenetic trees

AUTHOR AND MAINTAINER

<https://github.com/jennahamlin/tinselR>

2019

Mentoring ---

University of Georgia graduate students

E. Scopel Ferreira Da Costa
J. Pena

University of Georgia undergraduate students

T. Simmonds
K. Miller
J. Foley
S. Duque
B. Webb

Indiana University graduate students

C. Jewell
M. Gibson

Indiana University undergraduate students

A. Huh
J. Breisch
S. Henderson
L. Howser
C. Plasterer
D. Shukla
S. Seo