

# Jenna Hamlin

HEALTH SCIENTIST - INFORMATICS

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

✉ [jhamlin@cdc.gov](mailto:jhamlin@cdc.gov) | [🌐 jennahamlin](https://www.linkedin.com/in/jennahamlin)

*I am a scientist with over 10 years of experience in classical genetics, genomics, and evolutionary biology. My training spans a range of tools and approaches—including bioinformatics, population genetics, and species distribution modeling—with a strong emphasis on experimental design. As my computational skills increased, the genomes of the organisms I study have become smaller. Currently, I work at the intersection of public health, application development, and the study of organisms that pose risks to human health, with a focus on 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

HEALTH SCIENTIST INFORMATICS

Atlanta, GA

22-Jun–Current

- General data analyses for Legionella
- International collaboration: Legionella International Typing (LIT) group developing a new typing scheme

### Centers for Disease Control and Prevention, Contractor with ASRT Inc.

BIOINFORMATICIAN II WITH DIVISION OF BACTERIAL DISEASES

Atlanta, GA

20-Nov–22-Jun

- Interfacing with state public health laboratories for bioinformatics and genomics help
- Refactored Species ID tool with Nextflow wrapped around for future deployment on Nextflow tower
- Phylogenetic and phylodynamic analyses for a Leginella sequence types of public health concern
- Development of validation for Species ID tools using simulated NGS data
- 60-day detail on Data Analytics and Visualization for Vaccine Task Force (April - June 2021)

### Centers for Disease Control and Prevention; Fellow with APHL

ASSOCIATION OF PUBLIC HEALTH LABORATORIES (APHL) BIOINFORMATICS FELLOW

Atlanta, GA

19-Sep–20-Nov

- Developing tinselR - an Rshiny application for annotating outbreak trees
- Participated in APHL core competency and leadership training
- 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
- Applied iterative population genomics and phylogenetics methods to classify 400 genomes
- 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
- Generated biological replicates via streamlined genotyping; confirmed accuracy with technical replicates and statistics
- Applied linear mixed models and ANOVA to analyze targeting, rates, and floral traits across replicated large-scale crosses

## 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, NEXTFLOW - PROFICIENT, GITHUB - EXPERT

## Publications

<b>JAP Hamlin, NA Kozak-Muiznieks, JW Mercante, L Rishishwar, ET Norris, ...</b>	<i>Msphere</i>
EXPANDED GEOGRAPHIC DISTRIBUTION FOR TWO <i>LEGIONELLA PNEUMOPHILA</i> SEQUENCE TYPES OF CLINICAL CONCERN	2024
<b>NV Grossmann</b>	<i>MMWR. Morbidity and Mortality Weekly Report</i>
LARGE COMMUNITY OUTBREAK OF LEGIONNAIRES DISEASE POTENTIALLY ASSOCIATED WITH A COOLING TOWER—NAPA COUNTY, CALIFORNIA, 2022	2023
<b>JAP Hamlin, T Nakov, A Williams-Newkirk</b>	<i>Microbiology Resource Announcements</i>
TINSEL—AN R SHINY APPLICATION FOR ANNOTATING PHYLOGENETIC TREES	2021
<b>JAP Hamlin, MS Hibbins, LC Moyle</b>	<i>Evolution letters</i>
ASSESSING BIOLOGICAL FACTORS AFFECTING POSTSPECIATION INTROGRESSION	2020
<b>JAP Hamlin, GB Dias, CM Bergman, D Bensasson</b>	G3
PHASED DIPLOID GENOME ASSEMBLIES FOR THREE STRAINS OF <i>CANDIDA ALBICANS</i> FROM OAK TREES	2019
<b>JAP Hamlin, G Dias, CM Bergman, D Bensasson</b>	2019
PHASED DIPLOID GENOME ASSEMBLIES FOR THREE STRAINS OF <i>CANDIDA ALBICANS</i> FROM OAK TREES	2019
<b>JAP Hamlin, NA Sherman, LC Moyle</b>	G3
TWO LOCI CONTRIBUTE EPISTATICALLY TO HETEROSPECIFIC POLLEN REJECTION, A POSTMATING ISOLATING BARRIER BETWEEN SPECIES	2017
<b>JAP Hamlin, TJ Simmonds, ML Arnold</b>	<i>Biological Journal of the Linnean Society</i>
NICHE CONSERVATISM FOR ECOLOGICAL PREFERENCE IN THE LOUISIANA IRIS SPECIES COMPLEX	2017
<b>JAP Hamlin, ML Arnold</b>	<i>Journal of Heredity</i>
NEUTRAL AND SELECTIVE PROCESSES DRIVE POPULATION DIFFERENTIATION FOR IRIS HEXAGONA	2015
<b>ML Arnold, AN Brothers, JAP Hamlin, SJ Taylor, NH Martin</b>	<i>Reticulate Evolution: Symbiogenesis, Lateral Gene Transfer, Hybridization ...</i>
DIVERGENCE-WITH-GENE-FLOW—WHAT HUMANS AND OTHER MAMMALS GOT UP TO	2015
<b>JAP Hamlin, ML Arnold</b>	<i>Ecology and Evolution</i>
DETERMINING POPULATION STRUCTURE AND HYBRIDIZATION FOR TWO IRIS SPECIES.	2014
<b>ML Arnold, JAP Hamlin, AN Brothers, ES Ballerini, RS Singh, J Xu, ...</b>	<i>Rapidly evolving genes and genetic systems</i>
NATURAL HYBRIDIZATION AS A CATALYST OF RAPID EVOLUTIONARY CHANGE	2012
<b>ML Arnold, JAP Hamlin, AN Brothers, ES Ballerini, RS Singh, J Xu, ...</b>	<i>Oxford University Press</i>
RAPIDLY EVOLVING GENES AND GENETIC SYSTEMS	2012
<b>ML Arnold, ES Ballerini, AN Brothers, JAP Hamlin, CDA Ishibashi, ...</b>	<i>Plant Ecology &amp; Diversity</i>
THE GENOMICS OF NATURAL SELECTION AND ADAPTATION: CHRISTMAS PAST, PRESENT AND FUTURE (?).	2012

## Presentations

<b>mashWrapper</b>	<i>Atlanta, GA</i>
GENOMICS INTEREST GROUP - TECHINCAL	2022
<b>tinselR - An RShiny App for Phylogenetic Tree Annotation</b>	<i>Atlanta, GA</i>
CDC DATA VIZ DAY	2020

<b>Start Writing Manuscripts in Rmarkdown</b> GENOMICS INTEREST GROUP - TECHINCAL	Atlanta, GA 2020
<b>Build Shiny Apps</b> WARNELL SCHOOL OF FORESTRY & NATURAL RESOURCES DATA MANIPULATION AND MANAGEMENT COURSE	Athens, GA 2018
<b>Population Genomics of wild and domesticated yeast</b> UNIVERSITY OF GEORGIA ENTHUSIASTS OF DIVERSITY GENETICS AND EVOLUTION	Athens, GA 2018
<b>No Easy D: Little Evidence for Introgression from Whole-Genome Data in Wild Solanum</b> SOCIETY FOR THE STUDY OF EVOLUTION	Portland, OR 2017
<b>Epistasis for Postmating Prezygotic Isolation</b> SOCIETY FOR THE STUDY OF EVOLUTION	Austin, TX 2016
<b>Spatial, temporal, and genome-wide patterns of differentiation for the Louisiana iris species complex</b> INDIANA UNVIVERSITY BROWN BAG	Bloomington, IN 2015
<b>What Drives Phenotypic and Genetic Divergence for Iris hexagona</b> SOCIETY FOR THE STUDY OF EVOLUTION	Raleigh, NC 2014
<b>Comparative Phylogeography of Two Louisiana Irises</b> SOCIETY FOR THE STUDY OF EVOLUTION	Snowbird, UT 2013
<b>Posters</b>	
<b>A Community Outbreak of Legionnaires' Disease Possibly Associated with an Outdoor Hotel Spa – California, 2021</b> COUNCIL OF STATE AND TERRITORIAL EPIDEMIOLOGISTS • Burmester J, Evans S, Ferguson D, Lunsfordward R, Rutschmann S, Kimura A, Flores E, Mukhopadhyay R, Hannapel E, Bertumen JB, Hamlin JAP, Miller, G	Salt Lake City, Utah 2023
<b>Combining Mash and NCBI Datasets via Nextflow for a Legionella Species Identification Tool</b> CDC LABORATORY SCIENCE SYMPOSIUM • Hamlin JAP, Willby MJ, and Winchell JM	Atlanta, GA 2023
<b>Spread of Sequence Type ST222 from the Great Lakes Area to the US West Coast and Europe</b> CDC LABORATORY SCIENCE SYMPOSIUM • Kozak-Muiznieks NA, Hamlin JAP, Lucas C, and Willby MJ	Atlanta, GA 2023
<b>Combining Mash and NCBI Datasets via Nextflow for a Legionella Species Identification Tool</b> AMERICAN SOCIETY FOR MICROBIOLOGY • Hamlin JAP, Willby MJ, and Winchell JM	Baltimore, MD 2022
<b>Spread of Sequence Type ST222 from the Great Lakes Area to the US West Coast and Europe</b> INTERNATIONAL CONFERENCE ON LEGIONELLA • Kozak-Muiznieks NA, Hamlin JAP, Lucas C, and Willby MJ	Yokohama, Japan 2022
<b>Tinsel - an Rshiny app for phylogenetic tree annotation</b> ASSOCIATION OF PUBLIC HEALTH LABORATORIES ANNUAL MEETING • Hamlin JAP and Williams-Newkirk A	Virtual 2020

## **Tinsel - an Rshiny application for annotating outbreak trees**

INTEGRATED FOODBORNE OUTBREAK RESPONSE AND MANAGEMENT

- Hamlin JAP and Williams-Newkirk A

*Canceled - Atlanta, GA*

2020

## **Genetic admixture and the origins of clinical *Saccharomyces cerevisiae* yeast**

FUNGAL GENETICS CONFERENCE

- Hamlin JAP and Bensasson D

*Pacific Grove, CA*

2019

## **Clinical *Saccharomyces cerevisiae* are admixed domesticated yeast**

CELLULAR AND MOLECULAR FUNGAL BIOLOGY: GORDON RESEARCH CONFERENCE

- Hamlin JAP and Bensasson D

*Holderness, NH*

2018

## **Higher Prevalence of Genetic Exchange Given Geographic Proximity**

SOUTHEASTERN POPULATION ECOLOGY & EVOLUTIONARY GENETICS.

- Hamlin JAP and Moyle LC

*Laural Hill, NC*

2017

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

SOLANACEAE CONFERENCE

- Hamlin JAP and Moyle LC

*Davis, CA*

2016

## **What Drives Phenotypic and Genetic Divergence for *Iris hexagona***

BOTANICAL SOCIETY OF AMERICA

- Hamlin JAP and Arnold ML

*Boise, ID*

2014

## **Comparative Phylogeography of Two Louisiana Iris Species: *Iris fulva* and *Iris brevicaulis***

AMERICAN GENETIC ASSOCIATION

- Hamlin JAP, Brothers AN, Ballerini ES, and Arnold ML

*Guanajuato, Mexico*

2011

# **Packages**

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## **tinselR - An R package for visualizing and annotating phylogenetic trees**

AUTHOR AND MAINTAINER

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

2019

## **mashwrapper - a Python tool for parsing mash results**

AUTHOR AND MAINTAINER

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

2022

# **Mentoring**

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## **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