HOLLY MCQUEARY, PHD

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OBJECTIVE

Driven recent PhD graduate with strong computational biology skills. Highly experienced in NGS data analysis, genomics and transcriptomics. Talented in designing experiments, troubleshooting, and developing new protocols.

RESEARCH EXPERIENCE

GRADUATE RESEARCH ASSISTANT

August 2015 – August 2020

- Analyzed and curated short-read NGS genomic sequencing data to identify loss of heterozygosity in diploid mutation accumulation progenitor lines of *Saccharomyces cerevisiae*
- Produced an experimental plan for future dissertation work in the form of an NSF grant and orally defended the research plan
- Produced, curated, and analyzed short-read NGS whole-transcriptome datasets for 45 aneuploid and euploid yeast mutation accumulation lines
- Designed and carried out a 200-day mutation accumulation experiment with 192 individual lines of *Saccharomyces paradoxus* in order to determine the effect of transposon load on mutation rate and spectrum
- Troubleshooted both wet-lab experiments and data analysis pipelines
- Developed novel protocol for engineering yeast strains to express GFP
- Developed protocol for competitive fitness assays using flow cytometry
- Trained and mentored 8 undergraduate students in laboratory techniques and bioinformatics approaches
- Held yearly committee meetings with 5 members of the faculty in order to evaluate progress towards degree and implemented ways to improve performance
- Presented biological research results and technical reports biannually to colleagues
- Documented code using version control and kept records of laboratory experiments
- Wrote articles of experiments done for publication in scientific journals

UNDERGRADUATE RESEARCH ASSISTANT

2013 - 2015

- Assisted with behavioral studies involving mice
- Handled mice prior to experiments, and injected mice with sodium salicylate to induce tinnitus and examine the effects of treatment on the acoustic startle reflex

SKILLS

R programming, Python, Linux/Unix, bash scripting, high-performance cluster computing, JMP, Bioconductor, Github, Geneious, Docker, Atom, Integrative Genomics Viewer, GATK, SAMtools, BWA, Tuxedo Suite

ACTIVITES AND INVOLVEMENT

Genetics Graduate Student Association
Travel Award Committee Chair 2018
Georgia Junior Science & Humanities Symposium
Paper Reader 2016, 2018
Clarke County Science and Engineering Fair
Science Fair Judge 2016, 2018
Clarke Middle School
Reptile Education Assistant 2017
2017 National Science Bowl
Timekeeper/Rules Judge 2017
Genetics Graduate Student Association
Social Chair 2016 – 2017
Genetics Graduate Student Association
Travel Award Reviewer 2016
Athens Science Observer
Blog Contributor 2016
American Society of Naturalists
Member 2016 – present
Society for the Study of Evolution
Member 2016 – present
Genetics Society of America
Member 2018 – present

- Placed mice on platforms inside boxes atop arduinos that transmitted the startle reflex of a mouse in response to a loud noise to the computer
- Developed vocalization recordings from mouse vocalizations using Adobe Audition
- Trained new undergraduate research assistants on basic laboratory techniques

EDUCATION

DOCTOR OF PHILOSOPHY (PH.D.) IN GENETICS
University of Georgia
Dissertation Title: Genomic and Transcriptomic Impacts of Large- and Small-Scale Spontaneous Mutations in Yeasts

BACHELOR OF SCIENCE (B.S.) IN CELL AND MOLECULAR BIOLOGY
University of South Florida
Thesis: Ultrasonic Mouse Vocalizations Facilitate the Acoustic Startle Reflex in Male CBA/CaJs

PUBLICATIONS

In prep
McQueary, H, M. Behringer, S. Demario, A. Canas, B. Johnson, A. Tsfoni, J. Chamberlin, D. Hall. Effects of spontaneous aneuploidy on gene expression in yeast mutation accumulation lines

SELECTED PRESENTATIONS

Talk Titled: "*Effects of Ploidy and Transposon Load on Mutation Rate in* Saccharomyces paradoxus"
GENE 8880, Department of Genetics, University of Georgia, 2019
Talk Titled: "*Effects of Differing Transposon Load on Mutation Rate in* Saccharomyces paradoxus"
Southestern Population Ecology and Evolutionary Genetics Meeting, Clemson Outdoor Lab, SC, 2019

AWARDS/HONORS

Genetics Graduate Student Association Travel Award
2019
Department of Genetics

SEPEEG Travel Award
2019
American Society of Naturalists

Mary E. Case Award for Excellence in Teaching
2018
Department of Genetics

Outstanding Teaching Assistant Award
2018
Graduate School, University of Georgia

Robin Hightower Graduate Support Fund
2018
Department of Genetics, University of Georgia

Graduate Travel Award for Submission of NSF GRFP Proposal
2016, 2017
Graduate School, University of Georgia

Rosemary Grant Award
2016
Society for the Study of Evolution

Talk Titled: "*Gene expression in aneuploid yeast*"
GENE 8880, Department of Genetics, University of Georgia, 2018

Poster Titled: *"Effects on Gene Expression of Spontaneous Aneuploidy in Yeast Mutation Accumulation Lines"*
Southestern Population Ecology and Evolutionary Genetics Meeting, Mountain Lake Biological Station, VA, 2018

Talk Titled: "*Evolution of Dosage Compensation in* Saccharomyces cerevisiae"
3MT Competition, University of Georgia, Athens, GA, 2016

Poster Titled: "*Rates and Biases of Mitotic Gene Conversion in* Saccharomyces cerevisiae"
Evolution, Austin, TX, 2016

TEACHING EXPERIENCE

Graduate Teaching Assistant, *Evolutionary Biology* 2019
- Lead discussion sections once per week and hold office hours
- Upload quizzes and exams for internet-based testing

Graduate Teaching Assistant, *Introductory Genetics.* 2017 – 2018
- Lead 2 discussion sections per week for 45 students, and hold office hours during the week
- Grade and proctor exams during the semester for 300 students

Graduate Teaching Assistant, *Biology I for Non-Majors* 2017
- Coordinate assignments and material for an online course
- Grade assignments and give feedback

Graduate Laboratory Assistant, *Biology I for Non-Majors* 2016 – 2017
- Lead 3 laboratory classes per week for 20 students, assist students during labs
- Grade assignments and hold office hours