

Nathan K. Glueck, PhD

nathan.glueck@uga.edu | 225-205-0104

EDUCATION

Ph.D.	Microbiology University of Georgia, Athens, GA	2020
B.S.	Biology Louisiana State University, Baton Rouge, LA	2015
B.S.	Physics Louisiana State University, Baton Rouge, LA	2013

RESEARCH EXPERIENCE & TRAINING

Postdoctoral Research Associate
University of Georgia, Athens, GA

Mar 2021 – Present

Advisor: Dr. Xiaorong Lin

Research Focus: *Cryptococcus* yeast-hyphae morphogenesis, exploitation of morphotype-based differences in virulence to identify and develop potential vaccine candidates and drug targets.

- Design and execute experiments to study *Cryptococcus neoformans* pathogenesis and morphogenesis at a cellular, genetic, and molecular level. Techniques include mouse infection models and cryptococcal vaccination studies, microscopy, bioinformatics, genetic engineering, and molecular biology/biochemistry techniques.
- Analyze and present data using appropriate statistical measures and software tools.
- Prepare manuscripts, including composition, strategic review and editing, and provide strategic review of grants prepared for federal sponsors.
- Prepare and communicate data to diverse audiences.
- Serve as a reviewer for a peer-reviewed journal (*mSphere*).
- Mentor junior scientists in technical training, scientific approach, and general best professional practices.

Graduate Research Assistant
University of Georgia, Athens, GA

Aug 2015 – Dec 2020

Advisor: Dr. Vincent Starai

Dissertation: "A Bacterial Secreted Effector Protein Drives Aberrant Eukaryotic Membrane Fusion."

Research Focus: Bacterial secreted effector proteins that hijack eukaryotic host cell biology for nutrient acquisition and survival during pathogenesis.

- Designed and executed experiments to study secreted effector proteins of bacterial pathogens in the model organism, *Saccharomyces cerevisiae*. Techniques include the following: immunological techniques, molecular biology, genetic engineering, flow cytometry, and yeast organellar separation and isolation.
- Analyzed data using appropriate statistical measures and software tools.

- Composed manuscripts and developed corresponding data presentations (oral and written).
- Trained undergraduate students in scientific approach.

TEACHING & MENTORING EXPERIENCE

Teaching Assistant

Jan 2017 – Dec 2020

University of Georgia, Athens, GA

- Courses:
 - Microbiology and Healthcare (1 semester)
 - Microbiology and Healthcare Lab (3 semesters)
 - Introductory Microbiology Lab (1 semester)
 - TA for lab prep (4 semesters)
- Taught laboratory courses in microbiology and medical microbiology for undergraduates and managed laboratory preparations necessary to lead courses.
- Supported the development of course lesson plans.
- Developed course quizzes, tests, exams, and other course assignments and graded course all materials (~60 students/semester).
- Developed supplementary instructional videos for undergraduate microbiology courses, such as basic microscopy user guidance (hosted on internal LMS).

Research Mentor

2017 – Present

University of Georgia, Athens, GA

- Mentored undergraduate and graduate students in research techniques, experimental design, data analysis, and scientific writing.
- Supported undergraduates participating in the NSF Research Experiences for Undergraduates (REU) Program at UGA, who presented their research project with a poster presentation at the conclusion of the semester.
- Supported postbaccalaureate students participating in the UGA Gateway to Graduate School Bridge Program.

LEADERSHIP

Southeastern Mycology Symposium Co-coordinator

2018

University of Georgia, Athens, GA

- Collaborated with a small team to organize and host a research symposium with funds received from an awarded proposal prepared by our team.

PUBLICATIONS

Glueck, N. K. and Lin, X. A leucine-rich repeat receptor-like kinase controls conjugation tube chemotaxis during sexual reproduction in *Cryptococcus*. *In preparation*.

Glueck, N. K., Xie, X., Lin, X. Alternative isoforms and phase separation of Ref1 repress morphogenesis in *Cryptococcus*. *Cell Reports* 2024. DOI: [10.1016/j.celrep.2024.114904](https://doi.org/10.1016/j.celrep.2024.114904)

Lin, J., Pham, T., Hipsher, K., **Glueck, N.**, Fan, Y., Lin, X. Immunoprotection against Cryptococcosis Offered by Znf2 Depends on Capsule and the Hyphal Morphology. *mBio* 2022. DOI: [10.1128/mbio.02785-21](https://doi.org/10.1128/mbio.02785-21)

Glueck, N.K., O'Brien, K.M., Seguin D.C., and Starai, V.J. *Legionella pneumophila* LegC7 effector protein drives aberrant ER:endosome contacts in yeast. *Traffic* 2021. DOI: [10.1111/tra.12807](https://doi.org/10.1111/tra.12807)

ABSTRACTS & PRESENTATIONS

UGA Fungal Group (2024): Oral Presentation “A leucine-rich repeat receptor-like kinase controls conjugation tube chemotaxis during sexual reproduction in *Cryptococcus*”.

Fungal Genetics Conference, Asilomar, CA (2024): Oral presentation “*Cryptococcus* employs alternative translation of a novel regulator *REF1* to produce isoforms with differential capacities for phase separation to control morphogenesis”.

Fungal Genetics Conference, Asilomar, CA (2024): Poster presentation “*Cryptococcus* employs alternative translation of a novel regulator *REF1* to produce isoforms with differential capacities for phase separation to control morphogenesis”.

UGA Fungal Group (2023): Oral Presentation “A novel gene *REF1* negatively regulates hyphal morphogenesis in *Cryptococcus neoformans*”.

UGA Fungal Group (2022): Oral Presentation “A novel gene suppresses hyphal morphogenesis in *Cryptococcus neoformans*”.

Fungal Genetics Conference, Asilomar, CA (2022): Poster presentation “Putative oxidoreductase Cip1 is critical for pheromone-independent unisexual development in *Cryptococcus neoformans*”.

UGA Fungal Group (2021): Oral Presentation “*Cryptococcus neoformans* Cip1 plays a role in pheromone-independent hyphal morphogenesis”.

ASCB, Washington, D.C. (2019): Poster presentation “*L. pneumophila* secreted effector protein LegC7 facilitates fusion of endosomal and ER-derived compartments in *S. cerevisiae*”.

AWARDS & HONORS

Career Development Symposia Award Recipient	2017
Genetics Society of America	

PROFESSIONAL DEVELOPMENT

Project Management Training	2020
Project Management Institute	

- Completed project management training demonstrating understanding of fundamental knowledge, terminology, and processes of effective project management.