***Curriculum vitae***

**Benjamin Chadwick**

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**EDUCATION**

***12/2018-current* University of Georgia Athens, Georgia**

Department: Plant Biology P.I.: Dr. Xiaorong Lin

Graduate student, PhD Program Overall GPA: 3.5/4.0

***08/2014-07/2018* University of Delaware Newark, Delaware**

Department: Biology Sciences P.I.: Dr. Harsh Bais

B.S., Concentration in Molecular Biology and Genetics (Honors) Overall GPA: 3.6/4.0

**Research Experiences**

***12/2018-present***

Graduate Research Assistant, University of Georgia, P.I.: Dr. Xiaorong Lin

**Project I: Investigating components involved in CO2 tolerance and their role in pathogenesis in *Cryptococcus neoformans***

* Developing a genetic mapping population
* Experimental evolution and comparative genomics
* High-throughput phenotype screening
* Creating gene knockout and overexpression mutants

**Project II: Determine the mechanisms by which transcription factor Crz1 regulates filamentation in *Cryptococcus neoformans***

* Identifying protein-protein and protein-DNA interactions by CO-IP and CHIP-Seq
* Epitope and Fluorophore labeling of proteins

***05/2017-05/2018***

Undergraduate Research, University of Delaware, P.I.: Dr. Harsh Bais

**Project:** **Evaluation of natural rice rizhospheric microbes to mitigate blast infection toxicity**

* Designed an insertional mutagenesis screening assay
* Assessed antifungal ability of various soil microbes
* Propagated various cultivars of *Oryza sativa*

***06/2016-08/2016***

Research Intern, Fraunhofer Center for Molecular Biotechnology, P.I.: Dr. Alexei Prokhnevsky

**Project: Generation of *Nicotiana benthamiana* transgenic plants for developing virus like particle recombinant protein expression**

* Generated fusion protein and transformed *E. coli*, *A. tumefaciens*, and *N. benthamiana*
* Screened for transgene presence and expression by PCR and western blot

**TEACHING EXPERIENCES**

***01/2023 -present***

Teaching Assistant (TA) for Introduction to Biological Sciences

University of Georgia, Supervisor: Kimberly Martin

* Prepares and present introductory laboratory lectures
* Prepares experimental materials and guide undergraduates to perform experiments
* Grades student assignments
* Meets with students during office hours to address their questions

***01/2022 - 05/2022***

Teaching Assistant (TA) for Introduction to Plant Biology Laboratory

University of Georgia, Supervisor: Dr. Paola Barriga

* Prepares and present introductory laboratory lectures
* Prepares experimental materials and guide undergraduates to perform experiments
* Grades student assignments and exams
* Meets with students during office hours to address their questions

***09/2019 -present***

Supervisor of undergraduate and graduate rotation students

University of Georgia, Supervisor: Dr. Xiaorong Lin

* Designs and supervises research projects for undergraduate and rotation students
* Trains students in *Cryptococcus* genetics and microscopy related experiments

***09/2016-12/2017***

Teaching assistant and Group Tutor for the introduction to microbiology course

University of Delaware, Supervisor: Dr. Carlton Cooper

* Prepared experimental materials and helped instruct students to perform experiments in the lab section of the course
* Held weekly group tutoring sessions to assist students

**SKILLS**

*Genetics*

DNA purification, bacteria transformation, molecular cloning, CRISPR/Cas9 genome editing, nanopore sequencing/library prep

*Biochemistry:*

Protein expression and purification, SDS-PAGE and Western Blot, immunoprecipitation

*Cell Biology:*

Fluorescence and confocal microscopy, fungal cell culture

*Bioinformatics and Computer skills:*

Genome alignments, SNP calling, Linux based software, RStudio, Photoshop, Snapgene, Microsoft office

**Publications**

1. **Chadwick BJ**, Lin X. Bulk segregant analysis identifies *MAT2* interacting genes related to filamentation development in *Cryptococcus neoformans*. **Manuscript in preparation**
2. **Chadwick BJ**, Xie X, Lin X. QTL Mapping and Bulk Segregant Analysis reveals natural polymorphisms associated with CO2 tolerance in *Cryptococcus neoformans*. **Manuscript in preparation**
3. Ristow L, Jezewski A, **Chadwick BJ**, Stamnes M, Lin X, Krysan D. The fungal pathogen *Cryptococcus neoformans* adapts to the host environment through TOR-mediated remodeling of phospholipid asymmetry. Nature Communications, **Manuscript in revision**
4. Zhu J, Ameri AJ, Qi P, **Chadwick BJ**, Devos KM, Lewis ZA, Khang C. The histone modification H3K27me3 and transcription factor MoGti1 coordinately control expression of effector genes in rice blast fungus. GENETICS. **Manuscript In revision**
5. **Chadwick BJ**, Ross BE, Lin X. Molecular Dissection of Crz1 and Its Dynamic Subcellular Localization in *Cryptococcus neoformans*. *Journal of Fungi*. 2023; 9(2):252. https://doi.org/10.3390/jof9020252
6. **Chadwick BJ**, Pham T, Xie X, Ristow L, Krysan D, Lin X. The RAM signaling pathway links morphology, thermotolerance, and CO2 tolerance in the global fungal pathogen *Cryptococcus neoformans*. eLife, 11, e82563. doi:10.7554/eLife.82563
7. **Chadwick BJ**, Lin X. On the history and applications of congenic Strains in *Cryptococcus* research. Pathogens. 2020 Sep 15;9(9):750. doi: 10.3390/pathogens9090750

**Presentations and Posters**

**03/2022 31st Fungal Genetics Conference, Asilomar CA**

QTL Mapping and Bulk Segregant Analysis reveals natural polymorphisms associated with CO2 tolerance in *Cryptococcus neoformans* (poster)

**03/2022 31st Fungal Genetics Conference, Asilomar CA**

The RAM signaling pathway links morphology, thermotolerance, and CO2 tolerance in the global fungal pathogen *Cryptococcus neoformans* (poster)

**10/2020 Cellular Biology of Eukaryotic Pathogens Conference, Clemson University**

Genetic Analysis of CO2 Tolerance in *Cryptococcus neoformans* (poster)

**05/2018 Undergraduate Research Symposium, University of Delaware**

Bacteria-Fungus Interactions: Finding Bacterial Components to Inhibit Rice Blast (poster)

**Honors and Awards**

**2022** Paper of the year award (UGA Plant Biology Department)

**2022** J. William Fanning Graduate Fellowship Nominee

**2022** Gene E. Michaels Travel Award

**2021** Excellence for In-Vivo Research Award, Marine Biological Laboratory (MBL)

**2021** Marine Biological Laboratory (MBL) Molecular Mycology Student Scholarship

**2021** Gene E. Michaels Fellowship Grant

**2018** Distinguished Honors Award, University of Delaware

**2017** ResearchSummer Scholar Award, University of Delaware

**2016** Honors Enrichment Award, University of Delaware

**Science Community and outreach**

***05/2018-05/2019***

Treasurer of Mycology Graduate Student Organization at University of Georgia

* Managed the budget and spending of the student organization
* Helped to plan and lead seminars and symposiums

***09/2018-present***

Mentor in the Planting Science organization

* Provide suggestions and feedback to high school students for their plant science projects
* Share my passion with students and encourage them to think scientifically