

# Stephani Suset Martinez Barrera, Ph.D.

## Address

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## EDUCATION

August 8<sup>th</sup>, 2024

### **PhD: Biochemistry and Molecular Biology**

College of Science, Clemson University, Clemson, SC

GPA: 3.95

May 6<sup>th</sup>, 2017

### **Bachelor of Science: Chemistry – Biochemistry Emphasis.**

College of Science, Lindenwood University, Saint Charles, MO

GPA: 3.25

## SKILLS

Molecular Cloning	DNA/RNA Extraction	Primer Design
cDNA Synthesis	PCR & RT-PCR	Restriction Enzyme Digest
Gel Electrophoresis	Bacterial & Yeast Transformation	Cell & Molecular Biology
Sterile Techniques	Media Preparation	Cell Culture/Maintenance
Direct Cell Counting (hemocytometer)	Replica Plating	MIC Determination
Protein Expression & Purification	Co-immunoprecipitation	Bradford Assays
SDS-PAGE	Western Blotting	Flow Cytometry
Anesthetize - fruit fly	Fluorescence and Confocal Microscopy	Transmission Electron Microscopy
UV/Vis Spectroscopy	GC-MS	Thin Layer Chromatography
HPLC-MS	Infrared Spectroscopy (IR)	NMR Spectroscopy
Active Listening	Mass Spectrometry	Team Building
Presentation Skills	Protein Isolation	Project Pipeline
People Management	Collaboration Skills	Technical Writing
ChemDraw	Bioinformatics	R Studio
GraphPad Prism	Mega X	Cytoscape
Fiji (ImageJ)	SnapGene	Geneious Prime
MS Word	MS Excel	MS PowerPoint
Adobe Illustrator		

## RESEARCH EXPERIENCE

August 2017 – Present

### **Fungal Pathogen Research: Dr. Lukasz Kozubowski Lab at Eukaryotic Pathogens Innovation Center, Clemson University**

- Investigated the role of septin proteins in maintaining cell wall integrity and plasma membrane homeostasis in *Cryptococcus neoformans*.
- Conducted research on septins's role in thermotolerance by profiling the septin interactome via tandem mass spectrometry at room temperature and 37°C.
- Developed and optimized protocols for high-throughput mass spectrometry analysis.

August 2016 – May 2017

**Chemistry Research: Dr. Scott Hasty Lab at Lindenwood University**

- Investigated the reactivity of a carbohydrate bearing a heterocyclic leaving group to determine the speed/selectivity of the coupled product.

**TEACHING EXPERIENCE**

August 2019 – May 2022

**Teaching Assistant – Population & Molecular Genetics Laboratory at Clemson University, Clemson, SC  
Part Time ~ 28hr per week**

Assisted and guided junior/senior undergraduate students in a laboratory course that introduced advanced population and quantitative genetics concepts.

**Fall Semesters: GEN 4110 - Population and Quantitative Genetics Laboratory**

2 Credits (4 Contact Hours)

I taught students how to culture fruit flies (*Drosophila melanogaster*) for population genetic studies, such as calculating recombination frequencies and conducting chi-square analyses.

**Spring Semesters: GEN 4210 - Molecular Genetics and Gene Regulation Laboratory**

2 Credits (4 Contact Hours)

Taught DNA, and RNA isolation techniques and introduced them to various bioinformatic software for analysis of genetic sequences. The following model organisms were used: *Arabidopsis thaliana* & *Zea mays*.

August 2017 – May 2019

**Teaching Assistant – Introduction to Molecular Biology/Genetics at Clemson University, Clemson, SC  
Part-Time ~ 20hr per week**

Assisted and guided freshman/sophomore undergraduate students in a laboratory course that introduces basic molecular biology and genetics concepts.

**Fall/Spring Semesters: BCHM (GEN) 3040 - Molecular Biology Laboratory**

2 Credits (4 Contact Hours)

Taught students molecular cloning, and protein isolation techniques.  
Assisted student's mastery of laboratory instrumentation.

August 2015 – May 2016

**Chemistry Laboratory Assistant and Tutor at Lindenwood University, Saint Charles, MO  
Part-Time ~ 10hr per week**

Provided tutoring for undergraduate students enrolled in the chemistry program.

Assisted and guided undergraduate students in non-major chemistry laboratory courses.

Organized the chemical reagent stock room, and prepared reagents for lower chemistry laboratory courses.

Gained knowledge and experience in chemistry/biochemistry techniques and laboratory instrumentation.

August 2014 – July 2015

**Biology Laboratory Assistant and Tutor at Lindenwood University, Saint Charles, MO  
Part-Time ~ 10hr per week**

Provided tutoring for undergraduate students enrolled in the biological sciences program.

Oversaw the preparation of reagents and bacterial cultures for Microbiology courses.

Gained laboratory management and teaching experience.

Gained knowledge of biological techniques and laboratory instrumentation.

## ADDITIONAL CERTIFICATES/WORKSHOPS

Certificate in Engineering and Science Education – Department of Engineering and Science Education (ESED) May 2023  
MAGIC- Imaging and Flow Cytometry Workshop (CLIF-Clemson University) Summer 2018

## LANGUAGES

**English:** Fluent/Highly proficient (Reading and Writing)  
**Spanish:** Fluent/Highly proficient (Native language; Reading and Writing)

## HONORS/AWARDS

Department of Genetics & Biochemistry Outstanding Graduate in Learning (BIMB) Award (Outstanding Graduate Teaching Assistant Award) Spring 2022  
Clemson University's Interdisciplinary Research Endowed Fellowship (Award Based on Research & Teaching Service to the Department of Genetics & Biochemistry) Fall 2022  
NSF Rising Scientist Award (The Allied Genetics Conference (TAGC) Attendance Support for Minoritized Scientists) Spring 2024

## PRESENTATIONS

Poster (31st Fungal Genetics Conference – GSA) March 2022  
"Elucidating a Novel Role for Septins During High-Temperature Stress Response in *Cryptococcus neoformans*"  
Oral (Clemson University|EPIC – 10<sup>th</sup> Cellular Biology of Eukaryotic Pathogens Conference) October 2022  
"Elucidating a Novel Role for Septins During High-Temperature Stress Response in *Cryptococcus neoformans*"  
Oral (The Allied Genetics Conference (TAGC) 2024) March 2024  
"Elucidating a Novel Role for Septins During High-Temperature Stress Response in *Cryptococcus neoformans*"

## PROFESSIONAL SOCIETIES

Member • Genetics Society of America (GSA)  
Member • The American Society of Tropical Medicine and Hygiene (ASTMH)

## EXTRACURRICULAR ACTIVITIES

Member • Fungal Group at University of Georgia • May 2018 – Present  
Secretary • Genetics and Biochemistry Graduate Student Association • February 2018 – June 2019  
Organized and distributed information regarding club activities to members.

Helped organize social activities and planned the interview week for incoming department graduate students.

August 2017 – May 2024

Member • Genetics and Biochemistry Graduate Student Association •

## **PUBLICATIONS**

**Martinez Barrera S**, Byrum S, Mackintosh SG, Kozubowski L (2020) Registered report protocol: Quantitative analysis of septin Cdc10-associated proteome in *Cryptococcus neoformans*. PLoS ONE 15(12): e0242381. <https://doi.org/10.1371/journal.pone.0242381>

(Submitted) **Martinez Barrera S**, Hatchell E, Byrum S, Mackintosh SG, Kozubowski L (2024) Registered report Article: Quantitative analysis of septin Cdc10-associated proteome in the fungal pathogen *Cryptococcus neoformans*. PLoS ONE

(In preparation) **Martinez Barrera S**, Hatchell E, Patel T, Kozubowski L (2024) The role of septin proteins in cell wall integrity and plasma membrane homeostasis in *Cryptococcus neoformans*.