

What I Did Last Summer

Georgia students describe working in the labs of brilliant scientists

Meet members of the inaugural cohort of GRA Student Scholars. They're undergrads at Georgia universities who spent summer 2021 working in the research labs of GRA Eminent Scholars and GRA Distinguished Investigators – scientists who are among the most respected in their fields.



Kyra Chism
University of
Georgia

The chance to work in the lab of GRA Eminent Scholar Art Edison this summer meant that Kyra Chism would continue work she had begun last fall: Looking for more precise ways to measure how a worm, *Caenorhabditis elegans*, is able to eliminate bacterial toxins. • She earned valuable training in NMR spectroscopy, which uses ultra-high-powered machinery to gain atomic-level views of matter. • Kyra also made her very first poster presentation – at the *C. elegans* Worm Conference – and met with colleagues working on other research projects.

“Being a GRA student scholar has affected – for the better – what I want to do in the future. I hope to continue my efforts toward impacting the world through scientific research.”



Britt Haney
Emory

Britt built upon two years of her work this summer in the Wuest Lab at Emory, successfully synthesizing two molecules (called chalkophores) that have anti-bacterial properties by bringing copper into the targeted bacteria. • This success has set the lab up to conduct further tests to answer more questions about the molecules. • With fall now arriving, Britt's aiming to apply to graduate school. She's thankful she got to meet graduate students in the lab and bond with fellow researchers, both graduate and undergrad.

“Not only did I learn a lot this summer, I also was able to connect more with the other members of the lab.”



**Rockford
Watkins**
University of
Georgia

Working in the Edison Lab this summer was perhaps a pivotal experience for Rockford Watkins, revealing a new career trajectory that combines his scientific interests with a desire to make change for the greater good. • Rockford worked on several projects surrounding the study of *C. elegans*, a tiny nematode (worm). The projects involved Nuclear Magnetic Resonance (NMR) spectroscopy to analyze unknown compounds that the worm metabolizes. • Rockford's bioinformatics analysis of genetic strains of the organism helped develop a suite of programs to compare different strains. His work also exposed him to quantum mechanics, a field that he intends to explore in years to come by applying quantum computing to life sciences.

"I never envisioned myself doing hard scientific research of any variety, and now I cannot believe I did anything else. Before researching with Professor Edison, I was on an entirely different career trajectory."



**Alejandro
McDonald**
Emory

Diving into practical lab work this summer, Alejandro McDonald tackled an invigorating challenge: synthesizing a new molecule hypothesized to possess anti-bacterial activity against the bacteria *Vibrio harveyi*. The bacteria infect marine life and are believed to be responsible for oceanic bioluminescence. • Embracing the finesse and troubleshooting required for lab experimentation, Alejandro found joy in harnessing the Wuest Lab's state-of-the-art technology and witnessing the unforeseeable, sometimes colorful or patterned results of his experiments.

"I have learned to appreciate the correlation between patience and efficacy."



Demi Sadiku
University of
Georgia

The opportunity to work in Dennis Kyle's lab at UGA's Center for Tropical and Emerging Global Diseases provided Demi Sadiku with mentorship and experience in a variety of lab techniques. • Assisting Ph.D. candidate James Oristian as he studied a parasite that causes malaria, Demi used the DNA editing method CRISPR-Cas9, as well as the anti-malarial drug artemisinin. • Demi's confidence grew as she combined her deep desire to help humanity with the practical skills needed to succeed in a laboratory.

"I cannot wait to discover more about infectious diseases and the schemes of reducing their prevalence in the modern world."



Keneisha John
Georgia State

Being unable to work inside the lab due to Covid-19 didn't slow down Keneisha John, whose research for the Calhoun Lab could be performed on a computer. • Based on a hypothesis that auditory verbal hallucinations (AVH) are related to the connections between different regions of the brain, Keneisha analyzed functional MRI scans and other data on schizophrenia subjects. • Using Matlab and the GIFT toolbox developed at the TReNDS Center, she conducted a variety of statistical analyses to answer questions and ask even more important ones.

“Ultimately, I am also actively exploring auditory verbal hallucinations to know more about their neural origins.”



Gabriel Harris
University of Georgia

Research inside the Tsai Lab this summer provided a powerful learning experience for Gabriel Harris. His team explored a key component of the synthesis of salicinoids, a specialized metabolite produced naturally by poplar and willow trees, providing a defense against herbivores. • The chemical compound Gabriel worked to produce meant he had to quickly absorb skills in genetics, biochemistry, microbiology and bioinformatics. • While the intensive experience did not yield the compound, it gave Gabriel invaluable experience in the lab setting.

“I will use what I have learned over the summer to develop my scientific skills as I continue my research career.”



Michael Lira
University of Georgia

Despite having no prior lab experience, Michael Lira swiftly acclimated to the Kyle Lab this summer and contributed to research on malaria-causing parasites and their ongoing genetic mutations. • Learning lab methods such as DNA extraction, PCR tests and genome sequencing, Michael studied *P. falciparum*, a parasite that is increasingly resistant to artemisinin, a leading anti-malarial drug. • Addressing questions about two genes in particular, Kelch13 (PfK13) and Chloroquine Resistance Transporter (PfCRT), Michael is contributing to the understanding of drug resistance in the parasite.

“While working in the Kyle Lab, I have had the opportunity to conduct research in the exact field that originally provoked me to pursue a career as a physician.”

About the Program

Launched in 2021, the GRA Student Scholars program provides underrepresented minority students with a highly challenging research lab experience. The program is part of a larger effort by the Academy of GRA Eminent Scholars to strengthen diversity and inclusion in university research.

Special thanks to our corporate sponsors for supporting the launch of the GRA Student Scholars pilot program:



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