

Personal and Educational Experiences

As a child, I was curious about how the world worked. I consistently asked fundamental scientific questions to which no one seemed to know the answer. This led me to pursue the answers to these questions for myself, as in when I dramatically begged my mother to take me to the library in 2nd grade to read on how a cat can leap such a large distance compared to its size. During my freshman year in college, I began to understand that a career in scientific research would allow me to ask fundamental science questions, and possibly even answer them myself! My curiosity was heightened as I took advanced biology and chemistry courses that fed my inquisitiveness. Because I wasn't satisfied with text book knowledge, I took it upon myself to obtain hands on experience in a research lab. I applied to multiple undergraduate research programs and was accepted both into the Health Educational Research Opportunities Research (HERO) summer research program at [REDACTED] and the Initiative for Maximizing Student Diversity (IMSD) research program at [REDACTED]. Because I found my passion for research, I didn't want to be limited to performing research during the summer, and participating in the IMSD program allowed me to perform research throughout the year. The IMSD program paired academically high-achieving, underrepresented, science majors with research labs throughout the institution, while the program directors met with the students throughout the year to facilitate our development. During these programs, I discovered that scientific research would satisfy my lifetime of curiosity.

Undergraduate Research and Educational Experience: I received a Bachelor of Science degree in Chemistry at [REDACTED] where I graduated with high honors. As a chemistry major, I pursued pharmacology research under the mentorship of Dr. [REDACTED] at the [REDACTED]. Under both HERO and IMSD, my main project was to understand the cardio-protective role of the PDE-5 inhibitor sildenafil (Viagra®) against ethanol cytotoxicity in H9c2 rat cardiomyoblasts under normal and high glucose conditions, to understand this cardioprotective role in diabetics. Here, I used flow-cytometry, western blot, and cell culture methods to test my hypothesis that sildenafil protects against ethanol induced cytotoxicity in H9C2 rat cardiomyoblasts, under low and high glucose conditions. These experiments contributed to an abstract published in The [REDACTED] ([REDACTED] 2015). This work was also accepted as my honors thesis, and I presented both locally and nationally at the [REDACTED] and [REDACTED] conferences. These presentations are extremely important to me as I discovered I thoroughly enjoy communicating science to the community. My research experience as well as the rigorous Chemistry curriculum at [REDACTED] instilled a desire to advance my research training. Thus, the pursuit of a Ph.D. degree in an interdisciplinary life science graduate program was inevitable to continue and advance my research training.

Graduate Research Education: Currently, I am pursuing a Ph.D. at [REDACTED], in the laboratory of [REDACTED] in the [REDACTED] program. I chose to attend [REDACTED] for various reasons. First, [REDACTED] allowed me to choose

my training from 11 different departments/programs during my first year of rotations. More important to me, [REDACTED] is one of the few universities with a graduate IMSD program, which focuses on increasing the number of PhDs awarded to graduate students underrepresented in biomedical research. Finally, [REDACTED] is an incredibly collaborative environment and encourages this collaboration in graduate students with labs in and out of the institution through forums, symposia, and retreats. During my first year I rotated in four diverse laboratories, expanding my background knowledge, as well as lab technique expertise. Because I sought modern scientific technology, I made sure to learn techniques such as RNA interference, Seahorse assays, CRISPR, and Fluorescent Imaging. The work I performed during my rotation with [REDACTED] contributed to my authorship on a paper that has recently been published by [REDACTED]). This work also led to my current thesis project. The training I receive through this project will allow me to advance my technical skills library at the interface of three disciplines: Neuroscience, Physiology, and Biology. I plan to use my training on a career that communicates science to the greater community, as well as the advancement of human health.

Educational, Career Development, and Future Goals

My educational goals include completing a Ph.D. in [REDACTED] with multiple publications and presentations. Training under [REDACTED] will allow me to complete this goal successfully as he has an excellent track record in mentoring students, he has expertise in multiple disciplines of physiology, anesthesiology, and neuroscience, and he has strong collaborations with various faculty at other institutions. Additionally, [REDACTED] and I have constructed an individualized development plan that will allow me to achieve the milestones necessary for my career plans. This individualized plan includes but isn't limited to one-on-one weekly lab meetings, grant writing training, preparing for leading journal club/lab meeting, and presenting at conferences. I already plan to present my work at the [REDACTED] as well as several national conferences. The neuroscience program at [REDACTED] also allows me to serve as a teaching assistant for Fundamentals of Neuroscience.

Due to my upbringing in an immigrant Eastern African household, my ultimate career goals include becoming a Research Program Director of undergraduate and/or graduate students with an emphasis on training underrepresented students. This involves having the necessary skills, and background in leading and mentoring students and faculty. Therefore, I have enrolled in a leadership and management course in the [REDACTED] School of Business, where I plan to complete three rigorous workshops advancing my leadership, and management skills. I also plan on contributing to [REDACTED] IMSD program as a student recruiter once I pass my qualifying exam.

Outreach, Leadership, and Mentoring:

Since high school, I have consistently been involved in leading, mentoring, and scientific outreach in the community. I sought these opportunities not only to communicate science to my peers and mentees, but to also use these experiences as leverage for my plans on becoming a

Research Program Director. My first scientific outreach experience in high school was international, as I spent the summer of 11th grade teaching math and science to elementary students in Africa. This experience was truly humbling and led to continuing this effort back home in the U.S. I continued teaching during my undergraduate education, where I served as a teaching assistant in general chemistry 1 and 2. Responsibilities included leading a weekly recitation, facilitating class, developing written and oral communication plans to explain chemical phenomena to novices and experts, and practicing effective teaching strategies. I also served as a science counselor at the Mad Science camp of ██████████ where I facilitated interactive and fun scientific experiments to grade-school campers with the goal of enhancing their scientific curiosity and expanding on their creativity. Additionally, I helped lead a lab skills boot camp at ██████████, where I trained ██████████ undergraduate students new to scientific research in basic molecular techniques. I was also employed as an instructor at ██████████ where I tutored elementary and high school students in advanced science and math courses, as well as ACT and SAT preparation. All of these experiences continued to emphasize the existent learning gap in the community among all age groups, so I made it a goal to fill that gap by hands on teaching of scientific knowledge. Not only did I implement teaching scientific knowledge in the community amongst peers and youth, but I also sought to nurture a craving for innovation and creativity amongst them.

During my undergraduate education, I fulfilled a few extracurricular leadership positions on campus. Leadership activities increased my experience in guiding peers and youth, and expanded my creativity. Specifically, it developed my innovation outside of class and lab, and this is an extremely important characteristic for my career pursuits as I will lead not only students, but also faculty and peers. I held multiple officer positions in ██████████ chapter of the Cancer Awareness Team, where I served as Secretary and President. Responsibilities of the President included training by a health care educator in primitive cancer prevention strategies with the goal of then training undergraduate peers. I led bi-yearly cancer prevention training for the members in order to educate the local community on cancer prevention strategies. Hence, all these activities furnished me with the necessary criteria I need to continue my efforts in scientific outreach, and innovation in the community during my graduate career and beyond.

Because of my passion for outreach, I have already sought these opportunities as a young graduate student. This summer, I mentored and trained an undergraduate student and a high school student. I have trained both students in PCR, DNA purification, and cell culture methods. Additionally, I have been selected to assist with ██████████ recruitment of graduate students, an important role as I represent the embodiment of ██████████ University biomedical research graduate school. I hope to continue mentoring and training students throughout my graduate career. I will start off with becoming a mentor for IMSD-lead: “██████████” high school program, as well as the ██████████ Summer Science Academy for undergraduate students. After all, it was through similar programs and outreach efforts that my passion for scientific research was uncovered. Naturally, I have made it my life plan to pay it forward.