Personal Statement

There are two important aspects to advancing science, research and education. Our knowledge about the processes of life has come from those who have utilized tools to acquire information about biological processes. However, discovery is not an isolated process. Indeed, it is by understanding previous results that novel questions arise. Therefore, communication and teaching the younger generation of students is essential for science. To this end, I have already begun to develop my leadership, education, and research skills.

Research: I have become passionate about basic science research. Although finding a cure or treatment for a disease is truly a noble and invaluable cause, it is through answering fundamental curiosities about life that broad scientific conclusions can be drawn. My research background has provided me with a foundation in self-driven basic science inquiry and training others. As an undergraduate, the requirement for completing a research project at XXX University gave me the impetus to design and carry out a project. In addition to being responsible for the project from conception to completion, I also presented my work for various audiences and I helped my peers with techniques I learned through previous work. To become familiar with XXX's labs, I was a student-worker, where I prepared materials and lectures for lab activities. Building upon my experiences at XXX, I sought a position as a research assistant in the laboratory of Dr. YYY at MMM. In the year and a half as a research assistant, I had the opportunity to train various co-workers, from technicians to post-docs. After gaining extensive research experience, I have entered the Umbrella Program in the biological sciences at MMM for my graduate training. This program's mission is to provide a strong, broad knowledge foundation for its students. My experiences in the umbrella program have led me to define my interest in cellular biology, and my rotations have solidified this interest as I have learned various methods to answer questions about cellular function.

Education and Communication: A scientist must be able to communicate and teach scientific discoveries to a broad audience. Effective communication is not only important for relaying experimental findings, it is also essential for helping the general public understand scientific goals and for encouraging young students to learn about and become interested in science. My interest in education stems from my unique background, which has provided me with a distinct perspective in entering the scientific field. As an undergraduate, my goal was to teach high school biology and chemistry. To accomplish this I majored in biology and minored in chemistry and education. The goal of my education classes was largely to prepare future teachers by exploring different teaching methods for students with different perspectives. Understanding these skills, I am now well equipped to teach students who have different learning styles or educational backgrounds. Unfortunately, many educators lack these skills: much of education consists of didactic lecture followed by a test to provide a grade. Particularly in science, I believe that this form of teaching, while important, can wane a student's interest. Using effective teaching techniques is essential to recruit America's future scientists. I have also had direct experiences with teaching in various settings. In high school, I found my passion and skill in teaching by tutoring my peers in math and chemistry. Additionally, in college, I peer tutored three sections of the freshman biology lab. My strong background in education provides me with insight into how to communicate science in an understandable way to various audiences.

I also plan to bolster my graduate training with various opportunities to practice my communication and teaching skills. Specifically, MMM graduate programs minimally require one first author research publication to graduate (I plan to publish more, as the vast majority of students do), and my proposed mentor, Dr. ZZZ, urges her students to also publish a review. In addition, I will participate in many opportunities to give oral presentations, including the

departmental annual retreat, "Works in Progress" meetings, and the monthly interdepartmental focus groups. Finally, Dr. ZZZ regularly attends international conferences, bringing her students to present and network at least once a year. To further my experience in teaching, in my fourth year of graduate school, I intend to be a teaching assistant for an undergraduate course and the neighboring Department of Biological Sciences provides ample opportunities to do so. Additionally, I will utilize the Center for Teaching at MMM, as it provides feedback for teachers to allow improvement in instruction.

In addition to my love for teaching I also have a passion for inspiring excitement for science in the community. To do this, I will become involved in MMM's Center for Science Outreach, whose purpose is to provide programs to educate K-12 students and the general public. The specific area in which I am interested is the Scientist in the Classroom Partnership (SCP, previously NSF-funded GK-12), in which graduate students from Nashville universities teach science and technology at a local middle school once a week for a full school year. Additionally, many of the participating middle schools have a large representation of minority groups, and I am looking forward to the opportunity to broaden these students' exposure and interest in science. I have already established a relationship with Jeannie Tuschl, coordinator of SCP, and have volunteered to participate in other ways during my first year of graduate study, including science fair judging and Family Career Days. Although a large commitment, I believe that participating in this program will provide me with the invaluable opportunity to teach and communicate with a broad audience.

Leadership: I have a long record of leadership experience. In high school I held various presidential and council positions, including presiding over our school's chapter of the National Honor Society. I further pursued opportunities for leadership in college at XXX. I joined the multi-disciplinary Honors Program which afforded me the opportunity to take challenging classes and write an honors thesis. Furthermore, I was the vice president and president of our school's chapter of the Beta Beta Beta National Biological Honor Society. While holding this position I provided the club with much-needed direction by organizing programs and fundraisers. Additionally, I maintained my emphasis on academics and was invited to join the national honor society, Alpha Chi (top 10%). Therefore, I have a long history of academic success and pursuing leadership opportunities that have given me the confidence to become a scientific leader.

I have a unique and substantial scientific background and I have chosen to become involved in various programs during my graduate school career to continue my training in becoming a leader in scientific research and in scientific education. Additionally, I have chosen a lab where I will not only be trained in state-of-the-art technology to answer important questions, but I will also become an expert in the field of nuclear cell biology. This field excites me, as what I learn and discover can be applied to any biological field I pursue in the future, and I will be participating in the elucidation of a complex method of cellular regulation. Dr. ZZZ also has a long history of training students, as she has mentored numerous graduate students and post-docs who have developed successful science careers. Finally, in addition to Dr. ZZZ's success as a respected scientist, her leadership as a woman administrative official provides the ideal role model for an ambitious woman in science. Specifically, I plan to become a primary investigator in basic science and maintain my emphasis on educating young scientists through my professorship. Receiving the NSF GRF will enable me to continue my personal development in both scientific research and education/communication, in order to become a scientific leader.