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**Personal Statement**

I was walking down the hall of my University’s science building wondering who else would be joining me at the final exam review session for our Intro to Genetics and Cell Biology course. To my surprise when I entered the room it was only my professor, Dr. Erin Shanle, and I. After having our one-on-one review session, I followed Dr. Shanle out of the room and knew this was my chance; I had to ask now to at least get my name on her radar. I remember quietly asking if she had any openings in her research lab for the upcoming semesters. Smiling, she said we could meet the following semester to discuss potential projects. Fast forward to that meeting, I sat in her office barely speaking a word because I was unsure of what I had just gotten myself into. She began by asking me what I liked most about biology and I replied with DNA. Little did I know, this would become the first day of my long rollercoaster research journey into how cancer mutations, DNA damage, and yeast would all fit together.

I remember my first day I walked into the lab. I was wide eyed as every piece of equipment seemed so foreign but interesting to me. That day she was just teaching me how to pour agar plates, but I was too nervous to even attempt. Instead I purposely watched how she worked around in the lab fascinated by how fluid and confident her motions where. As she handed me a pipette, I knew she was interested with how well I worked with one. To her surprise, I had a very steady and accurate hand and I would soon grow to love pipetting whatever I could. Throughout the fall semester I spent many hours familiarizing myself by reading tons of literature papers. The following spring semester I started my work in the lab by cloning the gene of interest, Mre11, into a plasmid vector. This was likely the least problematic procedure I would conduct during the next two and a half years.

The main goal for this research was to use yeast as a model organism in order to identify and characterize conserved cancer mutations that disrupted the function of the DNA damage response protein Mre11. In humans, Mre11 is a member of the MRN complex which consists of Rad50 and Nbs1, and this complex is highly conserved in yeast with the exception of Nbs1 which is replaced by Xrs2. The connection of cancer development from mutations found in ATM and Nbs1 proteins, which interact with Mre11, has been previously studied. Those mutations cause Ataxia-Telangiectasia (AT) and Nijmegen Breakage Syndrome (NBS), respectively which cause chromosomal instability and the predisposition of cancer development. A few mutations within Mre11 have been linked to a disease called Ataxia-Telangiectasia-Like Disorder (ATLD) which shows similar traits to AT and NBS because they prevented the full formation of the MRN complex, thereby preventing the detection of DNA damage and repair. My research could be used as a simple screening method to quickly identify which conserved cancer mutations disrupt protein function which could promote cancer development.

During this time, Dr. Shanle approached me with a new opportunity she wanted me to consider. The program was called the Perspectives on Research In Science & Mathematics (PRISM) program which allowed for a professor and a student to conduct research over the summer. With this opportunity ahead of me, I would go on to get the experience of my life simulating what a career in laboratory research could be like. While continuing my yeast research, that summer would test my patience and challenge me to develop problem solving skills in order to keep the project afloat. By the end of that summer I felt like I had climbed Mount Everest and was on top of the world. I was presenting my research to the few professors still in Farmville and the local community when a group of ladies stopped at my poster. Within a few minutes of listening to my speech one of them stopped me and thanked me for the work that I am doing to help such a devastating disease. I remember being confused for a second. I wasn’t curing cancer with the research I was doing but then it hit me that any new discovery was one step closer. With this in mind, I knew my end goal for this project was to publish my work for others to know.

Over the next couple of semesters, I put any time I had into furthering my project. This is also when I would be introduced to traveling for national conferences. At this point in my career I had only presented a few posters and oral presentations at Longwood University’s research symposiums and I had a last-minute presentation at the Virginia Academy of Science (VAS) conference that was also held at my University. During one of our weekly meetings, Dr. Shanle briefly mentioned a conference she was looking into that alternated their annual conference between the west and east coasts. I was hooked and quickly googled were it would be held for that year and Orlando, Florida popped up on my screen. Fast forward to that spring Dr. Shanle, my co-researcher Jessica Savas, and I walked into the American Society for Biochemistry and Molecular Biology (ASBMB) conference center and was blown away with the thousands of scientists walking around. That conference would soon become a crucial part of my final project as that was where I met Dr. Ray Sreerupa from Linfield College. Professors always talk about how important it is to share information, but I actually got to experience this as I began to collaborate with Dr. Sreerupa since she was working in human cells on the same project as I was with yeast.

Jumping to today, I have had the experience of a lifetime working on this research project studying how cancer mutations can disrupt the function of the DNA damage response protein, Mre11, using yeast as a model organism. My time as an undergraduate student is coming to an end as well my project as we are officially beginning our manuscript for publication. I fell in love with this career and I see myself working as a cell and molecular laboratory research scientist discovering whatever needs to be identified next. A position at your company’s lab will not only allow me to follow my passion for research but I will become a crucial part of your research team.