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I remember the feeling of pure intimidation as we first walked into Biotech. With its towering glass ceilings and endless hallways lined with complicated research posters, this magnificent building had quite the humbling effect of making one feel incredibly small and insignificant. As I looked around in awe, I only became more nervous. Battling the butterflies in my stomach, I proceeded to make my way upstairs with my partner AJ to a small conference room where we were to meet everyone else. As unfamiliar face after unfamiliar face filtered into the room, my anxiety grew. Soon, I was surrounded by strangers- other interns, graduate students, and Dr. Richard Gross himself. Being in such a seemingly foreign setting was nerve-wracking, but, as I ultimately learned, it would also be immensely rewarding.

Dr. Gross and his graduate students were quick to introduce themselves. To both my surprise and my relief, they were all remarkably welcoming and friendly. Within 5 minutes, I knew the name of everyone else in that room, and all my previous nervousness had been replaced by eagerness to begin the internship. We were there to work in Dr. Gross' "green chemistry" lab, intrigued by the possibility of conducting research that would have great impacts on our communities. When the topic of sophorolipids was introduced to us, AJ and I instantly jumped at the opportunity to delve into the fascinating field. A hallmark of Dr. Gross' work, sophorolipids presented an exciting new avenue of safe substitutes for a variety of harmful substances known as ethoxylated surfactants used throughout industry. A surfactant is a compound with amphiphilic properties, allowing it to interact with both hydrophobic and hydrophilic substances at a boundary between the two immiscible phases, thereby allowing them to mix. In other words, when two substances that do not mix are brought together, such as oil and water, a surfactant can be added to allow the two to mix and form a more homogenous mixture called an emulsion. These compounds are found in many common products, such as soaps, facial cleansers, shampoos, paints, salad dressings, etc. Ethoxylated surfactants, however, can have a

plethora of negative effects. Because they are petroleum-based, the process for making these surfactants can release many toxic by-products and high amounts of hazardous waste. Additionally, as synthetic products, they do not biodegrade, thus accumulating in the environment and damaging ecosystems. Perhaps the most dangerous characteristic of ethoxylated surfactants, however, is that they contain 1,4-dioxane, a chemical that has been linked to cancer. Sophorolipids, meanwhile, are natural biosurfactants produced by nonpathogenic yeast that are friendly to both the environment and to users of an array of products. They are biodegradable and are not associated with any harmful by-products either, making them extremely favorable for use.

To us, this world of sophorolipids was amazing. We discussed the topic at length with our mentor, Taylor, a graduate student at the Gross laboratory, and ultimately learned that our research would be focusing on improving the efficiency of sophorolipids. This would be done by combining them with different natural emulsifiers and oils and testing them at different concentrations. For the next six weeks, AJ and I worked in the lab creating dozens of emulsions and analyzing hundreds of sets of data to investigate the effect of different variables on sophorolipid performance. In the process, we not only learned new procedures and how to use new machines, but we were also able to experience the true rigor and responsibility of working in a laboratory. Ultimately, we took ownership of our research, and worked extremely hard to do as much as we possibly could. The days where we opted to skip lunch and chose to stay in the lab for a few extra hours in order to gather as much data as possible ended up paying huge dividends. Our persistence ultimately resulted in a project we were extremely proud of, as we were able to further understand the nature of sophorolipids and created a stronger case for these safe alternatives in the market today.

While my time at RPI taught me a great deal about the sciences and working in a professional setting, some of the most important lessons I took away came from outside the lab. The independence and subsequent responsibility of being away from home for an extended period of time made immense impacts on me, teaching me a great deal about myself and about what to expect as I prepare myself for college and the future ahead. My internship also allowed me to form long lasting relationships with some truly wonderful and down-to-earth people who

made my experience absolutely unforgettable. I am beyond thankful to Dr. Gross, Taylor, and my fellow student interns who I now call my friends for giving me such a wonderful time that I can look back upon so fondly. I am also incredibly grateful to Laura Weinberg, Lisa Levine, Randa Maher, and the rest of the Great Neck Breast Cancer Coalition for providing me with this unbelievable opportunity and experience. They have not only made an indelible mark on my life, but also on the lives of countless others through their tireless work on preventing and raising awareness for breast cancer. I am proud to be a part of such a brilliant organization with such a remarkable drive to make a positive impact on the people around us. I can only look forward to the amazing things we can achieve in the future!