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Internship: Rensselaer Polytechnic Institute, Dr. Richard Gross

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Science is the shining emblem of society. It serves as a testament to progress, a testament to civilization and everlasting growth. In the modern era, much of the luxuries and privileges we have, come only from the dedication of men and women all over the world to the pursuit of science. Over the past summer, I was able to just briefly immerse myself into the fascinating world of science and research. This amazing and aptly described once-in-a-lifetime opportunity granted by Laura, Lisa and the GNBCC and indeed it was an incredible experience. It was a unique honor and privilege to be able to give back to my community in such a way, all the while learning much about the very real danger that we are exposed to in our daily lives and doing our part to stop them!

On the morning of July 10th, just a day after we had all filed into our dorms, we were lead to the destination that would be our second home for the next four weeks. Within the glittering glass walls of Rensselaer Polytechnic Institutes' very own Biotechnology and Interdisciplinary studies building, we met Dr. Richard Gross. Dr. Gross and his students quickly led brief descriptions of their work and research to the rest of the intern students, and I admit I was intimidated. Yet at the same time, I was intrigued, curious to find out more about their research. After these presentations, my partner and I settled on a bright young man known as An Su to be our mentor and thus our exciting journey began. Despite having supervision at times, the feeling of being independent was startlingly pleasant, it truly felt that you were a college student bustling about and conducting important research!

Biotech, as we called it, was the lab that we worked in and conducted our experiments. We would arrive bright and early at 9 AM, just after breakfast and work the day until dinner only stopping for lunch, but I can assure the work was beyond rewarding. It was amazing to be in a lab filled with such amazing equipment and just to know that you are standing in a room where scientific breakthroughs are made is humbling in the best way possible. With our mentor, An, we focused on a relatively unexplored enzyme known as Cutinase. The enzymes natural job is to break down the Cutin layer that plants have, however innovative Dr. Gross and An were pondering methods on whether its hydrolyzing abilities can also be put to use on polymers elsewhere. As such my partner and I got to work first hand with all of the scientific equipment in the lab and set off the learn more about the enzyme Cutinase. We tested it to find its optimal pH levels, optimal temperatures, and even a preferred solvent polarity to understand the best environment for the enzyme to thrive in. After we were able to find a preferred environment, we moved onto the more important part of our research. In reality, my partner and I were attempting to find if Cutinase retained the ability to break down Phthalates. Phthalates are plasticizers, often found in various plastics such as makeup and some packagings. While some phthalates aren't related to breast cancer, common ones such as Dimethyl Phthalate and Diethyl Phthalate are indeed linked to breast cancer. Yet another concerning aspect is that many people are not necessarily aware of the health risk these phthalates pose and aren't aware enough to take actions against these chemicals.

Over the four weeks of consistent and rewarding work, we were able to glean important and valid results assuring us that our time spent in a world renowned laboratory under the tutelage of a great professor did not go to waste. Our research with Dr. Gross at RPI provided

bountiful amounts of knowledge and yielded positive results that show the Cutinase enzyme may hold abilities that would allow it to break down phthalates, leaving the world a better place.