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GNBCC essay

The minute I first swiped my I.D. at the door of the Soto-Sonnenschein Lab, I immediately felt like I was going to be involved in something BIG. I swallowed nervously, realizing that nothing I had read or studied prepared me for what lay beyond that door: this was a real lab that really made a difference. I mustered up what few random facts about Bisphenol-A (BPA) and mammary gland development that I remembered from the studies that had been forwarded to me from the lab, and I pushed the door open.

Before I even had a chance to look around the lab and meet everyone, Dr. Ana Soto beckoned me into her office and explained to me the goals and general direction of the Soto-Sonnenschein lab. It was overwhelming. I never knew that a single lab of around 15 people: a few Post Docs, lab technicians, and students, could be so influential and active in the public sphere. This was completely new to me – my dad is a part-time medical researcher (he's a nephrologist), but he always complains about how his research is slow and results are often hard to correlate to real life. Here, the scientists work with clear goals and actually accomplish things that the public later hears about. It was utterly amazing.

Before arriving at the lab, I had imagined what kind of research I would be immersed in. I thought that the lab I would be working in would be a group of people dedicated to bringing about change for the better of society: in other words, lofty ideals that are not often replicated in real life. Especially when dealing with cancer: a disease so vast and dangerous yet understood and studied so little. However, to my surprise, my imagination wasn't that far off. Because the Soto-Sonnenschein lab's philosophy is centered on their strong belief that scientific research should have clear public consequences and that slow and accurate research is most often the most persuasive, I found that this lab really was bringing about change.

I knew right off the bat that I wouldn't understand, or remember, most things these scientists were doing. Dr. Carlos Sonnenschein told me that it is required that all the employees stay at the lab for at least 2 years. So what could I reasonably accomplish in 2 weeks? It seemed almost silly. But, I didn't let that stop me. Even though I did end up making slides most of the time, I did learn more than I ever had in 2 weeks.

Before participating in this program, I had no idea that estrogen-mimicking chemicals can be found everywhere in our environment. I also had no idea that estrogen could be bad for you. Apparently, plastic products from rubber duckies to nalgene bottles contain BPA or one of its by-products. These chemicals can easily leach into our bodies and cause serious problems. Because BPA is a chemical similar to estrogen, having BPA in our bodies is similar to having too much estrogen: and this is not good. In fact, too much estrogen can cause abnormal growth in mammary-gland tissue, which is a precursor to breast cancer. It was mind-opening to learn that about 95% of the population has BPA byproducts in their systems. How can the government allow such penetration? This is

what the Soto-Sonneschein lab has to deal with, and it is not easy. However, everyone at the lab was very optimistic and eagerly involved me with their research.

Everyone that I worked with really understood and explained their projects in words that even I could understand. Most of the time, these explanations used pictures. It was really remarkable, though, that in this lab of a central goal, there were so many different people doing different projects. There were two main projects: the 3-D cell culture project and the BPA project. In addition, there were many other projects going on simultaneously, like quantifying the estrogenicity of plastic lab dishes and even researching lung cancer!

All these projects will eventually be formed into studies or papers and published in journals. And they will make, however large or small, a contribution to future scientific research, as well as to public knowledge. I realized how important it is for research to be known to the public: what would be the point of research otherwise? All the studies from this lab show that BPA is a seriously dangerous chemical that is widespread and can have seriously harmful effects on biological development. But studies sponsored by industry show that BPA has a negligible effect on development, and is present in packaging in such low concentrations that it really can be ignored. Which point of view is correct?

It is hard to tell. But this doesn't stop researchers at the Soto-Sonneschein lab from continuing to work on developing their projects and actively participating in the public sphere (where often politics take over) and striving to make a difference. This conflict of interest emphasizes the difficulty the researchers at the Soto-Sonneschein lab have to face in order to make a difference. This opposition to change, and the restriction of BPA, is very great from the industry, and this shows that such research is very controversial, and consequently the lab becomes involved in a lot of politics. I think that it is this mentality that is the most striking quality about this lab. The eagerness and determination of everyone in the lab to continue their work: devising accurate experiments, collecting data, and analyzing it, no matter how tedious it may be is what enables the growth of this lab and their continued commitment to bring about change.

It was really amazing how clear all this became to me in 2 weeks. After 2 weeks, I was not only fully aware of the difficulties and successes of the lab, but I was also a fabulous slide-maker! I was so familiar with the steps of slide making that I could do it in my sleep. However, slides were not my only amusement in the lab. I also worked with high-tech microscopes that could make collagen glow with pretty colors, and this quickly became my favorite procedure. I loved looking on the computer screen at the different types of collagen fibers, and try to train my eye to distinguish between the hardly-distinguishable different shades of red, green, and yellow that signified the different diameters of collagen fibers. This was much harder than it looked.

I have to say, though, that my favorite part of working in the Soto-Sonneschein lab was meeting people from all over the world. It was amazing how such a lab could draw people from everywhere: there were French, German, Greek, Indian, Korean, and even Romanian researchers! The international flavor of the lab was great: everyone worked

together despite their different backgrounds, and the lab was really held together by common goals and determination. I think that this experience was really able to open my eyes to the true world of research, and I am very grateful for my selection by the GNBC.