

## The Summer Research Experience

This summer I had the incredible opportunity to be apart of the 2017 summer research program. Dr. Sonya Schuh was my mentor and I am so grateful to have been able to work so closely with her. Her passion, dedication, and expertise had been strong and present in all of the classes I previously took with her, so it really was an incredible opportunity to get hands on research with someone I admire so much. A fellow student and close friend of mine, Chane Cilliers, interned in Dr. Schuh's lab and worked on the project with us as well. We were all also lucky to have Julia Kadie, an extremely ambitious Miramonte High School Student who was interning in Dr. Schuh's lab as well. We had an amazing team that made such success in this research process possible. Though there are many other people to be grateful for and thank, I want to mention just one more name, Ashley Arnacio. She was a previous student of Dr. Schuh and did so much previous research that created the foundation for my summer research experience.

My project, in simple terms, studied the effects of BPA, a common chemical used in many plastic products. We studied these effects by treating African clawed frog embryos with BPA baths of specified concentrations. One of the most incredible things for me, was performing the in vitro fertilizations and watching an egg turn into a single celled embryo, then a two celled embryo, and eventually a 16 celled embryo, and in just a few days into a tadpole with a beating heart. It is still astonishing to think about how similarly it was that all of us past, present, and future started as an egg and developed in such a similar way. Not to be cliché, but even beyond the research and the concern with this harmful chemical, this program, for me, emphasized the beauty of life and nature.

The developing embryos were observed and imaged with a Leica high resolution stereoscope that produced very high quality images. We hypothesized that BPA would alter the development and survival rates of early stage embryos and would likely lead to morphological defects in a dose-dependent manner. The data we gathered this summer, combined with data from the summer before, provides conclusive results that BPA did in fact alter and disrupt development at very early stages of development at certain concentrations.

However, all of the work we did this summer and all of the results we got contribute to something much bigger. BPA is ubiquitous since the mass production of it in the 1950's, it unavoidable. In this sense, it is crucial to understand how this widespread chemical effects us

and at what concentrations. This is why I am thankful for the frogs. For obvious reasons it is impossible to study human embryos, yet human embryos and adults are experiencing the effects.

This program has given me the opportunity to contribute to something so much larger than anything I have worked on before, BPA is effecting human life, aquatic life, and many other ecosystems. It has been a truly eye-opening experience. The research program has solidified my belonging in this field and also opened up so many doors that I didn't even know were there. This summer I was surrounded by so much drive, ambition, intelligence, and excitement from both the professors and students and I know that this in itself has and will continue to mold my character in only the best ways.

