

Students & Scientists Breast Cancer Environment Research Program Essays, 2022

By Melody Song

Great Neck South High School

Great Neck Breast Cancer Coalition

University of Massachusetts Amherst, Vandenberg Lab

Over the course of the four weeks with Dr. Laura Vandenberg and her undergraduate and graduate students, my peers and I have learned about the impacts of endocrine disrupting chemicals and how they can impact mice mammary glands. During the first week, we talked about what breast cancer is and how they develop in mice. Laura told us about the story of Diethylstilbestrol (DES), which is a toxic endocrine disrupting chemical given to women in the 1900's as birth control. Later studies have shown that DES causes breast cancer and other adverse effects in the next generation after these women have consumed them. Laura showed us short videos of people explaining the dangers of certain chemicals to the human body. She wanted us to work together to create a short video informing the public about being cautious of what we buy in terms of chemicals in certain products. The next few weeks, we began to look into mice tissues to collect data. Occasionally, we would be at the lab where Laura's graduate student would teach us the methods and procedures of histology, immunohistochemistry, and the removal of RNA/DNA from mice organs. Going back to collecting data, we would work with microscopes and a software called ZEN to take pictures of these mice tissues. We were not told their treatment since that would result in bias. We learned about morphometrics, which was a way for us to count the number of terminal end buds, ductal extension, and total area of the duct. We also counted the number of mast cells, which told us how the immune system responded to these chemicals. After collecting the data, Laura taught us how to create graphs on excel, so we could create posters.