

Karina Thomas Essay, Summer 2020
Dr. Laura Vandenberg Laboratory, Virtual Instruction
GNBCC Internship

Coming into such a distinguished program such as this one, I knew that it was my duty to use my skills to learn from and to learn with awarded researchers such as Dr. Vandenberg from UMass Amherst. Applying to this program I didn't expect to already exceed my high expectations. I knew I was making the right decision in where I can further my knowledge in science and advance my research of the already known causes of breast cancer. Even though the circumstances that I and my fellow team members had to put up with this summer wasn't one that was usual, it absolutely did not hinder the great research, knowledge, values, memories, and friends that I have gained. My teammates and I have all lived on Long Island and have understood the statistics of Breast Cancer rates we have here. Some even experience it in their families. Laura and Lisa allowed us to progress our understanding of the topic and as a result I think we can all say our appreciation to them and the board for the opportunity and Dr. Vandenberg and her undergraduates, whom we studied under.

Dr. Laura Vandenberg was an amazing mentor and teacher to us this summer. In the beginning weeks of our internship, we learned through her presentations the basics of the human body, risk factors, pollution, the environment, and mutations. By learning the basics, we were allowed to thoroughly understand and research one of the key chemicals linked to breast cancer, or in other words our project for the summer. With her guidance we read through journals, articles, abstracts, lab studies, lab reports and so much more. This summer we learned how to use what we already knew from Dr. Vandenberg's presentations and how to expand on it and connect it to our research, especially if what we wanted to know wasn't written out in big sharpie on a whiteboard in front of us. Along with this, Dr. Vandenberg showed us her own research involving mice and their exposure to chemicals. She showed us the different effects we might see with chemicals we were researching which included behavioral changes, effects in the mammary glands, and overall issues with reproductive organs in mice. She also showed the importance of learning through animal studies and using it to connect to human reactions of the same chemicals in the studies we read, since mice have a lot in common with humans.

By the end of the summer, we were combining all of our research into visuals available to civilians about the research being conducted about the chemicals leading to breast cancer. We created several drafts and edited a lot of papers to ensure that the right information and the right amount of information was getting out to the viewer on infographics. Along with the ink for graphics we created presentations and either animations or comic strips to help inform others how and the result of being affected by different chemicals now and later on in life. Each of our team members chose different chemicals, to inform the public about the underlined if issues concluded from our research in the beginning half of our internship. My project revolves around the chemical of oxybenzone which is found in sunscreen as a UV repellent. My chemical was carcinogen affecting the risk of breast cancer. Oxybenzone was found to damage the DNA in mammary cells of mice with just a small dosage. However, studies found that it only damaged memory cells with estrogen receptors! Along with my research on the effect of oxybenzone on breast cancer I was also able to learn the negative effects of marine life which will end up effective humans through the consumption of fish. This summer I was able to create a comic strip that can lead viewers to think twice before choosing a sunscreen with oxybenzone in it as well as an infographic with cited sourced of studies I researched from.

To conclude, I can 100% say that the GNBCC program offered to high school students is and will always be an amazing program to introduce and spark curiosity of students just like me who want to continue their education in current issues in the world. It was such an informative internship that

increased my skills and my own research in such a short time. I can't explain how grateful I am to have been given the opportunity to learn under Dr. Vandenberg herself as well as her undergraduate and of course Laura and Lisa and the whole GNBC board. I hoped to be able to work with them in the future and help others with my research.