

Jacob Rigos

Great Neck Breast Cancer Coalition

Dr. Yong Zhu's Lab of Epidemiology and Public Health

Walking into the imposing building that made up Yale's Lab of Epidemiology and Public Health, I and my lab partner, Andreas, were going to our first day of work with Dr. Yong Zhu. We waited in the lobby for a couple of minutes until Daniel, the doctorate student who would supervise much of our work, took us up to Dr. Zhu's lab on the seventh floor. By this point, I was brimming with excitement to meet Dr. Zhu, who had found the connection between breast cancer and light at night. When Dr. Zhu entered, I expected a behemoth of a man, bristling with power and knowledge, but what I saw was a humble, honest man who truly cared about us, the interns.

We had formal introductions, and Dr. Zhu and Daniel proceeded to tell us about their lab and the other college students working there. Dr. Zhu, who needed to get back to work, told us that his door was always open for us to come in and ask questions. Andreas and I were relieved about our first impression and how well it went. Daniel then took over for Dr. Zhu, explaining safety protocols and what we would be studying. After that, he sent us seven documents that we would need to read. I, being a naïve intern, told him that I would have them all finished by tomorrow. He laughed and told me to try.

As soon as Andreas and I sat down to work, we realized the enormity of the task before us. There were over 70 pages of scientific articles, which doesn't sound like much, but the articles were so information dense that every other sentence

needed to be looked up for concepts and vocabulary. It was a steep learning curve, but one that would prepare Andreas and I for the next parts of our internship.

With our goal of exploring light at night and breast cancer, we then researched online, and chose to perform our research on Triple Negative Breast Cancer, the most deadly of the five types. Then, we found a gene, TAP2, that was involved in multi drug resistance and was related to light at night, and with that gene, came our experiment.

TAP2, Antigen Transporter 2, a gene which was found in one of Dr. Zhu's papers and is overexpressed in people who work at night. Our experiment tested the knockdown (complete temporary removal) of TAP2 with Triple Negative Breast Cancer. This was to test the removal of TAP2 in Triple Negative Breast Cancer to demonstrate the wide range of effects that light at night has. In effect, what we did is the opposite of what happens with light at night. By demonstrating one very, very small part of light at night, it brings up the question of the greater overall effect of light at night to the scientific community.

Looking back at my experience, the opportunity that the Great Neck Breast Cancer Coalition afforded me a glimpse into the world of research. Research, specifically my research experience, has impressed upon me the importance of continuing to research cancer and other diseases. The researchers at Yale were impressed by our desire and drive to learn and to work at the cutting edge of technology. Due to my experience, I wish to pursue research and medicine when I go to college and I can say that my desire to pursue medicine was due to my experience with the GNBC and all the help and support they have given me. I cannot express in

words how much the GNBC has helped me and I could not have been happier being part of this program.