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GNBCC Students and Scientists Research Program 2014
Great Neck North High School

I felt much hesitation applying to a program with such a strong name attached to it: the Great Neck Breast Cancer Coalition. I didn't think that I could have any influence in the field of cancer, let alone breast cancer, as a 17-year-old girl from a small town. With minimal knowledge on what would confront me if I signed up, I filled out the application and sent it. I have never made a better decision. After applying, I began to familiarize myself with any knowledge of cancer I did have. I pulled out my AP Biology notes as the day my trip to Tufts University came approaching. Little did I know, much information I was introduced to throughout my high school experience would be proven untrue through the studies I would conduct and read while at conducting research at Tufts University Medical Center's Soto Sonnenschein Lab.

The first day at the lab was spent conducting safety tests. These tests were more intensive and harder than one would think. But don't sweat; you get as many tries as you need until you pass the ten question multiple-choice quiz. The following hours were focused on familiarizing me with the studies conducted by not only our lab, but also labs across the country. These studies revealed not only alternate theories to understand cancer, but also exposure to the manner in which studies begin and are followed through. Though slightly overwhelmed with the information, I began forming connections between papers and between my existing knowledge in the field of science. After the first few days of assimilation to the lab setting, tools and papers, we began working and learning techniques. Neither my lab partner nor I had any familiarity with paraffin or how to correctly use a centrifuge, but those who worked at the lab are as good at teaching as they are at researching.

No questions were stupid. We were welcome to ask a question about any piece of information we weren't sure of or any technique we were totally confused about. Thus, we began our journey into the realm of cancer. My partner and I first and foremost were shown a piece of groundbreaking information that counteracted one unit of my Advanced Placement Biology course: the Tissue Organization Field Theory. This opposed the commonly known somatic mutation theory that I was taught in my biology class and many in the scientific field hold to be true. The Tufts Soto Sonnenschein Lab proposed and published the Tissue Organization Field Theory, stirring much controversy in the cancer field. TOFT defines cancer as a tissue based disease that begins with a default state of proliferation. The Somatic Mutation Theory defines cancer as a cell-based disease and assumes that cancer is clonal disease produced as normal cells accumulate mutations, which therefore generate tumors, meanwhile assuming that the default state of cells is quiescence, and require stimulation to proliferate. This theory changed the way that researchers looked at and conducted experiment, but there was one large population masked from this piece of information: the general public. The mission of my partner and I was to unveil this piece of information to not only have an enlightened scientific community on the alternate theory of cancer formation, but also an enlightened society who can change their ways now knowing that cancer is almost always sporadic and can be prevented by evading endocrine disrupting chemicals as well as other harmful toxins that exist in contemporary society.

And that is what my partner and I did. Upon arriving home from Boston, we began creating our presentation which was targeted to community members to learn about the theories of cancer, the validity of each theory, and how everyday citizens can use the ideas that these theories relay to lead healthier lives. My partner Sandra presented to a synagogue in Forest Hills and I presented to biology classes and faculty at my school as well as at my local synagogue. While making the presentation, we focused on targeting our audience by the products they are most likely to use and worked on finding alternatives to these products to ease the transition that our community members would experience upon trying to alter their lives. Before I knew it, my friends were asking me for packets and family members were switching from plastic to glass water bottles. I was experiencing change all around me, and I knew I was the catalyst for this change.

My experience working in the Students and Scientists Program for the Great Neck Breast Cancer Coalition was the most enlightening and engaging experience of my life. I was exposed to a new realm of cancer that I would otherwise never know. Do not have any hesitations if you're contemplating signing up; this is one of the most fulfilling experiences one could experience in his or her entire life, let alone at seventeen. You will learn a lot and meet bright minds that are promoted to think in unconventional ways and make breakthroughs that are currently foreign in the field of science and society. I would recommend it to anyone who even has a morsel of a passion in the sciences.