

## Of Mice and a Man

“Animal research and testing has played a major role in almost every medical breakthrough of the last century. It has saved hundreds of millions of lives worldwide...”, one of them being my dad’s. (Joan Ryan) When I was nine years old, my dad was diagnosed with testicular cancer. Testicular cancer is usually formed when the cancer infects germ cells, the cells that make up sperm. These cells are called seminomas and nonseminomas. My mom pulled me out of school and told me in the best way that she could that my dad was sick and would have to go the hospital. My youthful mind was muddled and scared, his illness exiting the realms of what I could grasp in understanding. I knew he was sick to the most of my childlike capacity but unfortunately for the rest of my family, they understood it all a bit too clearly. My dad was told that chemotherapy was a primary option, but it can only be done twice in one’s life; if it fails there are few options left. His treatment was a chemotherapy called BEP (Bleomycin, Etoposide, and Cisplatin) which is the most common and “safe’ option for his cancer. He had to be given the treatment a few times a week for about two months. Although chemotherapy takes a large toll on someone, it is a miracle drug compared to the inevitable grasp cancer holds on the body.

Biomedical research with animals, mainly mice, has generated treatments (such as chemo) to cancer-related illnesses throughout generations of medicine. Discovering chemotherapy with the use of animals began in World War II where use of nitrogen mustard helped track tumor development. One group of mice would be treated and one group would not; the treated group living significantly longer. The chemicals used in treatment caused a certain degree of harm to the specimen, leading to the discovery of overlapping use of drugs. With one use of chemotherapy overlapping the other, the damage done is overcome by the benefits of another, similar to my dad’s treatment. Researchers can use genetically modified mice to track the several types of cells

involved in the production of cancer and are able to trial unique treatment for each one. Human tumor tissue is implanted in the specified organ of the mouse to identify how the tumor spreads and what factors that cause the spread. The altered genes that are injected into the specimen closely identify with the altered genes of cancer patients. By identifying how the cells behave, researchers can experiment with ways to stop the growth in the least invasive way possible. Because of the unpredictability in cancer stem cells, live studies must be used to accurately track the disease's growth.

The chemotherapy initially performed its purpose, but a later PET scan revealed tumors by my dad's kidney's and the possibility of dangerous cancer cells carried by the lymph nodes. In order to find out if the tumors were cancerous, my dad had to have a rare surgery in Indianapolis called RPLND (Retroperitoneal Lymph Node Dissection). He had to leave right away and stay for a few weeks away from the family. The surgeon only had to remove a limited number of lymph nodes and the tumor by the kidneys. After further examination they were found to not be cancerous. The recovery was extensive and strenuous but the outcome of a healthy life was far worth it. To the relief of our family my dad is in remission to this day.

Using animals for biomedical research is the first step in saving millions of human lives. Through the trial and error of a numerous species, researchers are able to narrow down treatments for most tangible diseases. Biomedical research through animals is justified through the value it brings to cancer research and healing it has provided for not only my family, but millions of others. The use of animals has caused disease research to transition from the laboratory to people's everyday lives. Biomedical research with animals is the reason why my dad can see me grow up, graduate, get married and so on, and that in itself makes the research worth it.