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Postdoctoral Associate

Field of Study*Surgery***What impact do you want your research to have?**

Breast cancer is classified into subtypes, and among them, triple-negative breast cancer (TNBC) has a high malignancy and a poor prognosis. Since TNBC don't respond to conventional treatments, immediate research is needed for new treatments for TNBC.

Although research to treat TNBC with immunotherapy is in progress, much remains unknown about the role of immune cells in TNBC. It is reported that cancer-killing immune activity is suppressed in cancer patients. Among the immune cells, there are cells that suppress the immune response, and one of them is myeloid-derived suppressor cells (MDSCs), which are mainly found in TNBC but not in normal tissues. I am conducting research to elucidate how MDSCs contribute to the progression of TNBC. I want my research to provide new insights that will benefit TNBC patients suffering from poor prognosis.

What inspired you to pursue your area of research?

In 2020, 680,000 women worldwide died from breast cancer. Even today, many people are losing their loved ones due to cancer. I decided to pursue a career in cancer treatment so that people could spend more time with their loved ones. I have no doubt that we will conquer cancer, and I would be very happy if I could contribute to it. I have to go through a lot of trial and error while doing research, but the joy of discovering new things and the fact that this leads to happiness and peace for people around the world constantly motivate me.

What is most exciting about your research?

During my PhD, I studied prostate cancer using cancer cells and animal models. However, at the University of Miami, I was given a wealth of data and samples from patients treated at the hospital. It was an excellent environment to test whether our experimental results could really be applied to patients. By isolating MDSCs from the tissues of cancer patients, I was able to get interesting data showing the correlation of cytokine secretion of MDSCs in cancer patients with good prognosis and with poor prognosis.

What makes your research unique?

Although there are other groups working with MDSCs, their role in TNBC is largely unknown. To my knowledge, few studies have isolated MDSCs from TNBC cancer patient tissues. We are conducting research to identify the difference in cytokine secretion between TNBC and non-TNBC patients by isolating MDSCs from cancer patient tissue. Our study will, for the first time, elucidate the role of cytokines secreted by MDSCs in TNBC patients.

What are your plans after finishing your postdoc at the University?

After completing my training at the University of Miami, my goal is to continue my research as a professor in my hometown of Korea. Another project of mine is studying the genes involved in cancer progression specifically in black TNBC patients. As such, cancer shows different characteristics depending on race. For example, the incidence of gastric cancer among Koreans ranks first in the world, about ten times that of the United States. I think it will be interesting to solve the difference between cancer in Asians and other races from the point of view of immune cells. My next goal is to set up my own laboratory and conduct research using the methodology I learned here to study the function of immune cells in cancer.

