



Hyundai Hope on Wheels Hyundai Scholar Research

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Neuroblastoma is the most common solid tumor outside of the central nervous system. Approximately 1 in 7000 live births will be diagnosed with this malignancy. There are more than 800 new cases of neuroblastoma in the United States each year.

Traditionally, patients with neuroblastoma are treated with chemotherapy followed by a bone marrow transplant. More recent studies suggest that immunotherapy with an antibody specific to the surface of neuroblastoma has a direct anti-tumor effect. The goal of my project is to exploit this effect by directing the patient's own immune system to attack the cancer cell itself. In addition to utilizing a specific antibody (Anti-GD2), I will be using lenalidomide to enhance Natural Killer cells' ability to kill tumor cells. Besides being an immunomodulator, lenalidomide also disrupts the environment in which cancer cells thrive by depriving the tumor access to blood vessels and other nutrients. I will investigate the various effects of lenalidomide has on tumor cells. In addition, I will also perform experimental trials with lenalidomide and Anti-GD2 in a mouse model with neuroblastoma. If lenalidomide and Anti-GD2 are shown to be effective in mice, then the intention would be to add these agents as a phase 1 study to our current pediatric clinical trial, which will hopefully lead to an improvement in survival outcomes for patients with neuroblastoma.