Award ID:
RP170470

Project Title:
OCT4/c-MYC axis as a mechanism of resistance to 13-cis retinoic acid in neuroblastoma

Award Mechanism:
Individual Investigator Research Awards for Cancer in Children and Adolescents

Principal Investigator:
Kang, Min H

Entity:
Texas Tech University Health Sciences Center

Lay Summary:

A drug derived from vitamin A called isotretinoin is being used to treat the pediatric cancer neuroblastoma. Although the drug can cause cancer cells to change to non-growing, non-cancerous cells, such a response requires high drug levels. Some patients have low levels of drug, perhaps because of how it is given to young children, and perhaps because of genetic factors of patients. During the current study, we found that patients who are older than 18 months of age survive longer if the levels of the drug and the drug break-down product are higher. Our study is the largest study showing the actual relationship between the drug levels and the survival of patients in neuroblastoma. While we were conducting experiments and analyzing patient data, we also studied on why some neuroblastoma. We found a new molecule called c-MYC is responsible for the resistance. In this study, we will study how c-MYC is increased in some neuroblastoma cells, and how we can treat those neuroblastoma cells to decrease c-MYC so that isotretinoin can stop neuroblastoma cells from growing. When we successfully complete the study, we will have a new target for neuroblastoma patients who do not respond to isotretinoin patients, and we can search for a drug that affects the target.