NONTECHNICAL ABSTRACT

Neuroblastoma is the most common extracranial solid tumor of infants and children, affecting over 500 new patients in the United States each year. Although early stage disease is usually curable, often by surgery alone, metastatic disease rarely is. Unfortunately, nearly two-thirds of patients with neuroblastoma present with widespread disease. Long-term survival is less than 25% for these patients, even with intensive multimodal therapy, including bone marrow transplantation. Clearly new treatment strategies are needed.

One appealing approach to the treatment of late stage neuroblastoma uses an immunotherapy based strategy. A number of genes encode proteins such as interleukin-2 that help to activate the immune system. These genes can be put into tumor cells and cause the malignant cell to elicit an immune response to the tumor as a whole. In mouse models this effect helps to slow down tumor growth and may even get rid of the tumor. By having the tumor cells secrete a variety of different immunostimulatory proteins, a synergistic effect on the immune system may be generated. A second candidate protein is lymphotactin which acts at a different phase of the immune system. It functions as a chemoattractant for T cells by recruiting more lymphocytes to the site of a tumor which has been engineered to be more immunogenic. It is hoped that a more powerful immune response will be generated.