

Bankhead-Coley Cancer Research Program

Nishida, Seigo

*Surgery
University of Miami*

*2010 Program
Research Project Grant
(3-year project)*

Project Title: A Novel Immunotherapy for Liver Transplant Patients with Hepatocellular Carcinoma: Anti-tumor Effect of IL2-activated Donor Liver Natural Killer Cell

Project Summary: Liver cancer is the third leading cause of cancer-related deaths in the world, and frequently occurs in patients with liver cirrhosis from viral hepatitis. Liver transplantation is one of the best treatment options for patients with liver cirrhosis and liver cancer, and is frequently performed in the United States. However, liver tumors return in about 10-20 percent of these patients even though chemotherapy is performed, highlighting the need for additional therapies. More than 30 years ago, blood cells were found which could kill cancer cells. These cells were named natural killer (NK) cells. The mechanism of killing and the character of NK cells are now better known. Recent advancement of research has made it possible to purify, educate, and activate NK cells. Our laboratory has been able to take out cells from the donor and activate them to kill cancer cells without harming the patient. We plan to use this method in liver transplant patients with liver cancer. We intend to study NK cells and clarify their mechanism of killing the cancer cells. Although NK immunotherapy has been tried, this method has never been applied to liver transplantation with liver cancer. The goal of our program is to improve the quality of life of the patient through advancement of scientific research.