

Investigators develop activated T cell therapy for advanced melanoma

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T cells from patients with melanoma can trigger a protective immune response against the disease according to a new study out of University Hospitals Case Medical Center Seidman Cancer Center and Case Western Reserve University School of Medicine.

Published in the July/August issue of *Journal of Immunotherapy*, these new findings demonstrate that T [cells](#) derived from [lymph nodes](#) of [patients](#) with melanoma can be expanded in number and activated in the laboratory for intravenous administration in the treatment of patients. Led by Julian Kim, MD, Chief Medical Officer at UH Seidman Cancer Center, the research team has developed a novel technique to generate large numbers of activated T cells which can be transferred back into the same patient to stimulate the immune system to attack the cancer.

"This study is unique in that the source of T cells for therapy is derived from the lymph node, which is the natural site of the immune response against pathogens as well as cancer," says Dr. Kim who is also Professor of Surgery at Case Western Reserve University School of Medicine and the Charles Hubay Chair at UH Case Medical Center. "These encouraging results provide the rationale to start testing the transfer of activated T cells in a human clinical trial."

In his research laboratory at the School of Medicine, Dr. Kim and his team developed a new method to grow and activate [immune cells](#) in a two-week culture. Immune cells are extracted from lymph nodes which have been exposed to growing melanoma in the patient's body. Rather

than trying to activate the T cells while in the body, the lymph nodes are surgically removed so that the activation process and growth of the T cells can be tightly regulated in a laboratory. This novel approach to cancer treatment, termed adoptive immunotherapy, is only offered at a few institutions worldwide.

These promising findings have led to the recent launch of a new Phase I human clinical trial at UH Seidman Cancer Center in patients with advanced melanoma. The research leading to the clinical trial was funded by the National Institutes of Health and the Case Comprehensive Cancer Center. The new Phase I clinical trial is being supported by University Hospitals as well as a significant philanthropic effort including the Immunogene Therapy Fund, Paula and Ronald Raymond Fund and the Kathryn and Paula Miller Family Fund.

"The infusion of activated T cells has demonstrated promising results and is an area of great potential for the treatment of patients with cancer," said Dr. Kim. "We are really excited that our method of activating and expanding T cells is practical and may be ideal for widespread use. Our goal is to eventually combine these T cells with other immune therapies which will result in cures. These types of [clinical trials](#) place the UH Seidman Cancer Center at the forefront of immune therapy of cancer."

Additionally, the research team has been researching the possibility of using lymph nodes from patients with pancreatic cancer to develop T cell therapy. Their goal is to expand the program and eventually study other tumor types including lung, colorectal and breast cancers.

Provided by University Hospitals Case Medical Center

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