



**Research**

**PANCREATIC CANCER ACTION NETWORK**

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## GRANT SNAPSHOT

### 2013 Pancreatic Cancer Action Network – AACR Career Development Award

Grantee:	Eric Lutz, PhD
Institution:	Johns Hopkins University
Research Project:	<i>Exploiting the cancer mutome for personalized tumor immunotherapy</i>
Award Period:	July 1, 2013 – June 30, 2015
Amount:	\$200,000

## Biographical Highlights



Dr. Lutz is an assistant professor of oncology, and laboratory investigator in the cancer immunology program at the Johns Hopkins Sidney Kimmel Cancer Center. He earned his bachelor's degree in biochemistry from Albright College in 2000, and his doctorate in immunology from the Johns Hopkins University in 2008. He conducted his postdoctoral training in tumor immunology also at the Johns Hopkins University. Among other expert scientists, Dr. Lutz works closely with Dr. Elizabeth Jaffee, emeritus member of the Pancreatic Cancer Action Network's Scientific Advisory Board.

Dr. Lutz has more than 10 years of experience studying immunotherapy-induced T cell responses in both mouse tumor models and pancreatic cancer patients treated with GM-CSF-secreting whole-cell (GVAX) and listeria-based vaccines. His research is focused on developing new and personalized immunotherapeutic strategies for treating pancreatic cancer, identifying improved biomarkers for measuring responses to immunotherapy, and understanding the effects of immunotherapy on the pancreatic cancer tumor microenvironment.

## Project Overview

Pancreatic cancer is notorious for its resistance to conventional therapies. A novel treatment strategy involves harnessing the immune system to fight the disease. Since tumor cells arise from healthy cells within the body, most of the proteins on the cell surface are normal or only slightly altered. Therefore, the immune system is not typically able to differentiate tumor cells as "foreign." The goal for pancreatic cancer vaccines is to train the immune system to recognize pancreatic cancer cells as the enemy, ultimately resulting in their destruction.

Cells within the body's immune system called T cells function to recognize specific proteins presented on the surface of cells, and launch an immune response if the proteins are different from those found on the body's normal cells. Each pancreatic tumor has been found to have an average of 63 mutations. Dr. Lutz's project entails determining which specific mutated proteins are presented on the surface of pancreatic cancer cells, and seeing whether those proteins can be consistently and accurately detected in a small surgically removed piece of tumor. Next, Dr. Lutz will determine if T cells can recognize the difference between the mutated and normal versions of these proteins. Then, vaccines will be designed to "train" these T cells to recognize tumor cells as foreign, with hopes that they will seek and destroy the tumor, without impacting normal cells. Experiments will be conducted in mouse models of pancreatic cancer, with the longer term goal to conduct the first clinical trial of personalized tumor immunotherapy in pancreatic cancer patients.