



Research

PANCREATIC CANCER ACTION NETWORK

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GRANT SNAPSHOT

2011 Kovler – Pancreatic Cancer Action Network – AACR Innovative Grant

Grantee:	Hidde Ploegh, PhD
Institution:	Whitehead Institute for Biomedical Research
Research Project:	<i>Generation of Transnuclear Mice from Pancreatic Cancer Infiltrating T Cells</i>
Award Period:	July 1, 2011 – June 30, 2013
Amount:	\$200,000

Biographical Highlights



Dr. Ploegh completed his Bachelor's and Master's degrees at the State University of Groningen, and then pursued his PhD at the State University of Leiden, all in the Netherlands. During the course of his doctoral work, Dr. Ploegh was also a research assistant at Harvard University. Upon completing his PhD, he became a staff scientist at the University of Cologne in Germany, and then returned to the Netherlands as a staff scientist and head of the division of Cellular Biochemistry at the Netherlands Cancer Institute. In 2005, Dr. Ploegh moved to the Massachusetts Institute of Technology, where he is currently a Professor of Biology and a member of the Whitehead Institute for Biomedical Research.

Dr. Ploegh has received a number of honors and awards, including the Avery Landsteiner Prize, the Baillet Latour Prize, and the American Association of Immunologists Meritorious Career Award. He is a corresponding member of the Royal Dutch Academy of Sciences, a member of the American Academy of Arts and Sciences, and a member of the European Molecular Biology Organization.

Project Overview

Dr. Ploegh's project entails an attempt to harness the immune system to recognize and attack pancreatic cancer. The killer T-cell is a type of immune cell that searches for particular target proteins, or antigens, and uses them as a signal to destroy the cells displaying that antigen. Dr. Ploegh proposes to develop killer T-cells that specifically recognize a protein called mesothelin, known to be expressed on the surface of pancreatic cancer cells, and not normal cells. His experimental design involves creating mice that are programmed to generate killer T-cells that recognize mesothelin as their antigen, and then exposing pancreatic tumors to those cells.

Further, another type of immune cell, the regulatory T-cell, serves to impede the function of killer T-cells. Regulatory T-cells have been shown to be present within pancreatic tumors, contributing to immune evasion of the disease. Therefore, Dr. Ploegh will also investigate the specificity of the regulatory T-cells inhabiting the tumor, and determine whether their function can be therapeutically blocked to allow killer T-cells to attack the cancer cells. This aim will also be addressed with the use of a highly specific mouse model. Overall, this research project will answer important questions about whether a patient's immune system can be trained to recognize and kill pancreatic cancer cells.