



Research

PANCREATIC CANCER ACTION NETWORK

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GRANT SNAPSHOT

2011 Pancreatic Cancer Action Network – AACR Innovative Grant

Grantee:	James Eshleman, MD, PhD
Institution:	Johns Hopkins University
Research Project:	<i>Identifying Familial Pancreatic Cancer Predisposition Genes</i>
Award Period:	July 1, 2011 – June 30, 2013
Amount:	\$200,000

Biographical Highlights



Dr. Eshleman received his undergraduate, MD, and PhD degrees from the University of Pennsylvania. Following his Clinical Pathology residency there, Dr. Eshleman underwent his postdoctoral training at Case Western Reserve University in Cleveland. In 1997, Dr. Eshleman joined the faculty of Johns Hopkins University as an Assistant Professor of Pathology and Oncology, and Associate Director of the Molecular Diagnostics Laboratory, a position he still holds today. Dr. Eshleman is currently a Professor of Pathology and Oncology at Johns Hopkins.

Dr. Eshleman has dedicated his nearly 20-year career to the diagnosis and therapy of cancer. He collaborated on sequencing all genes in 24 pancreatic cancer samples with a prestigious group of Johns Hopkins researchers. Dr. Eshleman and colleagues also identified the partner and localizer of BRCA2 (PALB2) gene as a gene associated with familial pancreatic cancer risk. Dr. Eshleman is interested in the early detection of pancreatic cancer, in addition to individualized therapy of the disease.

Project Overview

Five to ten percent of pancreatic cancer cases are thought to be hereditary, where at least two primary relatives (parent, child, or sibling) have both been diagnosed with pancreatic cancer. For the majority of hereditary pancreatic cancer cases, it is unclear what familial genetic alterations contribute to the increased risk of the disease. Dr. Eshleman and colleagues have successfully utilized a method by which DNA from a pancreatic cancer specimen is compared to DNA from the same patient's normal cells. Human genes are present in pairs (two copies of each gene), and oftentimes, an individual is born with one abnormal copy of a gene, and cancer is initiated when the second copy of the gene also becomes damaged or mutated. By comparing the same patient's normal and tumor DNA, the researchers are able to pinpoint which genes had one defective copy in the normal cells, and underwent a second "hit" to now have two defective copies in the tumor cells.

Dr. Eshleman and colleagues have established nine hereditary pancreatic cancer cell lines, which are colonies of cells surgically removed from a patient's tumor, able to grow continuously in dishes in the laboratory. Dr. Eshleman proposes to fully sequence the DNA of the nine hereditary pancreatic cancer cell lines, and compare the results to each matched patient's normal DNA. Once candidate genes are identified that may predispose individuals to pancreatic cancer, Dr. Eshleman and colleagues will determine the frequency of those genetic changes in a larger group of patients with hereditary pancreatic cancer. Overall, these results could have strong implications towards understanding the genetic components of pancreatic cancer, and could help determine whether family members of pancreatic cancer patients are at risk for developing the disease themselves.