GRANT SNAPSHOT

2007 Pancreatic Cancer Action Network Pilot Grant

Grantee:	Christine Iacobuzio-Donahue, MD, PhD
Institution:	Johns Hopkins University School of Medicine, Baltimore, MD
Project Title:	*Using a Genomic Scale to Identify the Genes that Play a Role in the Ability of Pancreatic Cancer to Metastasize to Other Organs*
Award Period:	July 1, 2007 – June 30, 2008 (No Cost Extension: June 30, 2009)
Amount:	$60,000

Biographical Highlights

Dr. Iacobuzio-Donahue earned her MD and PhD in Pathology from Boston University School of Medicine. She then relocated to John Hopkins Hospital where she completed a residency in Anatomic Pathology and fellowships in Oncology and Gastrointestinal/Liver Pathology before being promoted to Assistant Professor and more recently to Associate Professor in the Department of Pathology. Dr. Iacobuzio-Donahue's research focuses on understanding how pancreas cancers grow and spread to other organs, and developing new drugs tailored specifically to the unique features of this disease.

Project Description

The funded study uses a novel technology called functional allelotyping to investigate changes in gene expression that accompany the formation and metastasis (i.e., spread) of pancreatic cancer. An important advantage of this technology as compared to other genome evaluation methods is that functional allelotyping detects abnormalities in both DNA content and eipgenetic control of gene expression in the same sample. The aim is to (1) characterize the allele-specific expression (ASE) of pancreatic cancer and then (2) validate the ASE of candidate genes identified in an independent sampling of matched normal and neoplastic pancreatic cancer tissue. Plans are to identify on a genomic scale the genes that may play a role in the ability of pancreatic cancers to progress and spread to other organs. This information is especially relevant to human pancreatic cancer as the dismal prognosis associated with the disease is largely due to the fact that most patients are not diagnosed until the disease is in an advanced stage when surgical resection is no longer a viable option. Studies that focus on pancreatic cancer metastasis have the potential to greatly expand our understanding of the most lethal stage of this disease and identify novel areas for intervention.

Results/Outcomes

Data have been collected and an analysis begun of normal, cancer and metastatic tissue from five individuals. The genetic and epigenetic alterations that accompany tumor progression are largely patient-specific, although chromosomes 9p, 18q and 17p are consistently lost in cancer tissues compared to normal. Plans are to collect and analyze data for up to 20 patients, after which a comprehensive analysis will be conducted of gene expression as a reflection of epigenetic events.

Lessons Learned

Project timing and progress are contingent upon the generation of epithelial enriched samples from postmortem tissues with sufficient quality mRNA. While there has been some success, the rates of accrual of patients for rapid autopsy and, of those patients, the take rates of xenograft formation in nude mice have been unpredictable.