GRANT SNAPSHOT

2013 Pancreatic Cancer Action Network – AACR Innovative Grant

Grantee:	M. Celeste Simon, PhD
Institution:	University of Pennsylvania
Research Project:	*Role of Hif1a in inflammation, tissue repair, and cancer of the pancreas*
Award Period:	July 1, 2013 – June 30, 2015
Amount:	$200,000

Biographical Highlights

Dr. Simon earned her bachelor's and master's degrees at Miami University and Ohio State University. Her doctoral work in Molecular Biology took place at Rockefeller University, and she conducted postdoctoral research at Rockefeller and then at Harvard Medical School. In 1999, she moved to the University of Pennsylvania School of Medicine and led one of the founding laboratories in the Abramson Family Cancer Research Institute (AFCRI). She became the Scientific Director of the AFCRI in 2007. She is a full professor in the department of Cell and Developmental Biology, and a Howard Hughes Medical Institute investigator. Dr. Simon has received numerous awards recognizing her research, such as the Stanley N. Cohen Award for Biomedical Research and the Elliot Osserman Award from the Israel Cancer Research Fund. Dr. Simon's research is focused on how cells sense and respond to changes in the availability of molecular oxygen.

Project Overview

Chronic pancreatitis, which is characterized by inflammation of the pancreas, is a well-known risk factor for pancreatic cancer in humans. However, the precise mechanisms by which chronic pancreatitis promotes pancreatic tumor formation remain elusive. A common feature of both pancreatitis and pancreatic cancer is a hypoxic environment. Hypoxia occurs when cells in the body exist in low-oxygen conditions. A critical protein in response to hypoxia is called HIF1a, or hypoxia-inducible factor 1a.

For her proposed project, Dr. Simon intends to evaluate the role of HIF1a in pancreatitis and pancreatic cancer, and the transition from inflammation to cancer. She will utilize genetically engineered mouse models of pancreatitis and pancreatic cancer, and also mice that are lacking expression of HIF1a. Dr. Simon and her colleagues will next analyze human tissue samples from individuals with pancreatitis or pancreatic cancer. This research will improve our understanding of the connection between hypoxia, inflammation, tissue regeneration, and cancer in the pancreas, and ultimately aid in the development of early detection and treatment tools for pancreatic cancer. In particular, in light of recent studies implicating the potential utility of targeting inflammatory cells in the treatment of pancreatic cancer, new insights into the role of HIF1a in inflammation and cancer could offer optimized strategies targeting inflammatory cells through modulating HIF1a activity to treat pancreatic cancer. Moreover, since drugs modulating HIF activity are currently in clinical trials, the proposed study could be readily translated to the clinic.