



Research

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GRANT SNAPSHOT

2013 Pancreatic Cancer Action Network – AACR Pathway to Leadership Grant

Grantee:	Yuliya Pylayeva-Gupta, PhD
Institution:	New York University
Research Project:	<i>Immunomodulatory mechanisms in Kras-driven pancreatic cancer and metastasis</i>
Award Period:	July 1, 2013 – June 30, 2018
Amount:	\$600,000

Biographical Highlights



Dr. Pylayeva-Gupta completed her undergraduate studies in Biochemistry at SUNY-Stony Brook. She received her PhD degree in Cell Biology and Genetics at Weill Cornell Graduate School of Medical Sciences – Sloan-Kettering Division. Dr. Pylayeva-Gupta is currently a postdoctoral fellow in the laboratory of Dafna Bar-Sagi, PhD at the NYU Langone Medical Center, where she is pursuing studies on the role of oncogenic K-Ras in modulation of immune responses in pancreatic cancer. Dr. Bar-Sagi received a Pilot Grant from the Pancreatic Cancer Action Network in 2008, and is also a member and former chair of the organization's Scientific Advisory Board.

Project Overview

The complex relationship between pancreatic cancer and the immune system is still being elucidated. Typically, the body's immune system functions to recognize and attack foreign invaders. As cancer cells are malfunctioning versions of healthy cells within the body, they possess a way to trick the immune system, so that it does not detect these cells as a threat. Moreover, pancreatic tumors may also harness the immune system as protective, especially as the cancer cells depart the primary tumor and migrate to other organs (a process known as metastasis).

Dr. Pylayeva-Gupta's proposed project aims to identify how the immune system is involved in the development of pancreatic cancer and its progression to metastasis. The microenvironment, or tissue surrounding and protecting pancreatic tumors, includes B cells and T cells – types of adaptive immune cells. To better understand how these cells participate in pancreatic cancer development and progression, Dr. Pylayeva-Gupta and her colleagues will try to induce pancreatic cancer in mice that are deficient for adaptive immune responses mediated by B cells. These experiments will reveal whether B cells are necessary for the growth of pancreatic tumors. Furthermore, induction of pancreatic cancer combined with activated T cell response will evaluate how pancreatic tumor cells are able to evade destruction by the immune system. For the second part of her project, Dr. Pylayeva-Gupta will examine the role of the immune system in metastatic spread of pancreatic cancer. These investigations will begin in the laboratory of Dr. Bar-Sagi, and then continue as Dr. Pylayeva-Gupta establishes an independent lab.

Proposed studies will advance current understating of immune activation in pancreatic cancer and associated metastasis, elucidate mechanisms for harnessing immune system to target pancreatic cancer and will likely contribute to identification of novel diagnostic and therapeutic modalities.