GRANT SNAPSHOT

2013 Skip Viragh – Pancreatic Cancer Action Network – AACR Career Development Award

Grantee:	Monte Winslow, PhD
Institution:	Stanford University
Research Project:	*Molecular Dissection of Hmga2 Function during Pancreatic Cancer Progression*
Award Period:	July 1, 2013 – June 30, 2015
Amount:	$200,000

Biographical Highlights

Dr. Winslow is an Assistant Professor in the Departments of Genetics and Pathology at Stanford University School of Medicine, as well as a member of the Stanford Cancer Institute. Monte performed his PhD work studying immunology and developmental biology with Dr. Jerry Crabtree at Stanford before doing his postdoctoral fellowship at Massachusetts Institute of Technology. There he worked with Dr. Tyler Jacks using mouse models of metastatic cancer to uncover the key determinants of cancer progression. Dr. Jacks received the Blum-Kovler Innovative Grant from our organization in 2012.

Dr. Winslow's laboratory is focused on understanding the mechanisms that drive cancer progression and metastasis. The goal of his pancreatic cancer research is to use genomic methods and animal models to uncover the molecular and cellular changes that underlie cancer invasion and metastasis.

Project Overview

One of the features of pancreatic tumors that make them so difficult to treat is their propensity to spread to additional parts of the body, through a process called metastasis. For metastases to occur, pancreatic cancer cells need to leave the tumor, invade the surrounding tissue, survive in the bloodstream, and thrive in a different organ environment. The molecular steps necessary for metastasis to occur have not been fully elucidated.

Dr. Winslow proposes to analyze the role of a protein called high-mobility group AT-hook 2 (Hmga2) in pancreatic cancer progression and metastasis. Interestingly, Hmga2 is normally present and active in the developing embryo, but typically silenced in adult tissue. However, pancreatic and other cancer types have been found to re-express Hmga2. Preliminary data suggest that Hmga2 plays a role in the cancer cells' ability to invade the surrounding tissue and colonize other organs. To test this hypothesis, Dr. Winslow and his colleagues will extend upon a previously established mouse model of pancreatic cancer where the disease is induced by alterations to K-Ras and p53. In addition, they will delete the *Hmga2* gene. The research team expects that deletion of Hmga2 will lead to pancreatic tumors that are significantly less aggressive and have decreased likelihood to spread outside of the pancreas. Since the function of Hmga2 is to interact with DNA and affect the expression of specific genes, Dr. Winslow will also determine which genes' expression is altered by the absence of Hmga2 in pancreatic tumors. The overall goal of Dr. Winslow's work is to increase understanding of the key components that make pancreatic cancer so aggressive, to allow the development of therapies to inhibit invasion or uncover vulnerabilities that could be exploited to eradicate pancreatic cancer metastases and significantly improve patient outcome.