GRANT SNAPSHOT

2008 Seena Magowitz – Pancreatic Cancer Action Network – AACR Career Development Award

Grantee:	David Dawson, MD, PhD
Institution:	University of California, Los Angeles
Research Project:	*Wnt Signaling in Pancreatic Cancer Progenitor Cells*
Award Period:	July 1, 2008 – June 30, 2010
Amount:	$100,000

Biographical Highlights

After receiving his MD and PhD in Molecular Biology and Genetics at Northwestern University, Dr. Dawson joined the University of California, Los Angeles (UCLA), where he completed a residency in Anatomic Pathology, a clinical fellowship in Gastrointestinal Pathology, and a postdoctoral research fellowship in the Department of Pathology and Laboratory Medicine. Currently he is Assistant Professor, Department of Pathology and Laboratory Medicine at UCLA. As a cancer researcher and sub-specialty gastrointestinal pathologist, Dr. Dawson is acutely aware of the aggressive biology and poor prognosis for most patients with pancreatic cancer. This awareness has propelled him to pursue research in this area. He is actively banking fresh pancreatic tumors and has established tools to study the Wnt pathway.

Project Overview

The funded project focuses on understanding the biology of pancreatic cancer stem cells and the role that Wnt signaling has on pancreatic cancer. Accumulating data suggest that cancer stem or progenitor cells are critical determinants of metastasis, chemotherapy resistance, and disease recurrence in a wide range of malignancies, including pancreatic cancer. The growth, survival and metastatic potential of cancer progenitor cells depends in part on the inappropriate activation of growth factor initiated signaling cascades such as Wnt, which is a special type of protein-directed growth and development pathway. The Wnt proteins form a large family of cell-secreted factors that control diverse aspects of development in organisms. Disruption of this pathway occurs through genetic or epigenetic (heritable changes in genome function that occur without a change in DNA sequence) alterations.

Plans are to determine (1) the importance of Wnt signaling on the cellular phenotype of pancreatic cancer progenitor cells, and the specific Wnt pathway members that are responsible for mediating Wnt signaling activity; (2) whether differences exist between Wnt signaling in pancreatic cancer progenitor cells versus those of the bulk cancer cell population; and (3) the potential contribution of epigenetic alterations in the dysregulated expression of Wnt mediators in pancreatic cancer progenitor cells and bulk tumor cell population. The study results will improve understanding of how pancreatic cancer stem cells differ from the majority of cells that make up the pancreatic tumor and how these differences might be responsible for the development and aggressiveness of pancreatic cancer. Better understanding of the biology of these pancreatic cancer stem cells will facilitate the development of new treatment strategies, including drug therapeutics, which can help enhance survival and quality of life.