



Research

PANCREATIC CANCER ACTION NETWORK

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GRANT SNAPSHOT

2003 Samuel Stroum – Pancreatic Cancer Action Network – ASCO Young Investigator Award

Grantee:	Christopher R. Cogle, MD
Institution:	University of Florida, Gainesville, FL
Project Title:	<i>Defining the Hemangioblast in Tumor Neoangiogenesis</i>
Award Period:	July 1, 2003 – June 30, 2004
Amount:	\$35,000



Biographical Highlights

After receiving his MD from University of Florida in Gainesville, Dr. Cogle completed a residency in internal medicine and a fellowship in medical oncology at the University of Florida Shands Hospital and Malcolm Randall VA Medical Center. He completed fellowship training in blood and marrow transplantation at Duke University Medical Center in Durham, NC. Early in his career, Dr. Cogle discovered that human blood stem cells make blood

vessels in addition to blood, and that cancers co-opt bone marrow to make cancer blood vessels. He has identified critical mechanisms in this interaction and has developed novel methods to block new blood vessel growth within cancer. In 2005 Dr. Cogle was named one of the top ten young U.S. scientists by the British Council.

Project Description

In the developing embryo, both blood cells and blood vessels are formed from a common precursor cell called a hemangioblast. Dr. Cogle has shown that adult blood stem cells act much like hemangioblasts in that they also contribute to new blood vessel development. Given his experience with blood stem cells repairing injured blood vessels, Dr. Cogle hypothesizes that blood stem cells also contribute to blood vessels in cancer. Using mouse models of pancreatic, lung, melanoma and lymphoma, the funded study aims to determine if blood stem cells do in fact contribute to the growth of blood vessels that feed cancers. Plans are to analyze these blood vessels for evidence that they originated from blood stem cells. If so, these cells may represent an excellent target to prevent the uncontrolled growth of pancreatic and breast cancer. This could be done by blocking the ability of blood stem cells to reproduce and migrate to the tumor, therefore stopping new blood vessel growth, starving the cancer of nutrients and stunting its growth.

Results/Outcomes

Dr. Cogle's laboratory recently found that pancreatic cancer and lung cancer attract bone marrow cells into growing tumors. Some of these bone marrow cells contribute to blood vessels within the cancers. Dr. Cogle also discovered that a certain critical protein is responsible for attracting bone marrow cells to sites of cancer growth. By blocking the protein, the growth of cancers can be stunted.



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Lessons Learned

As with all of medicine, nature and science: assume nothing, critically appraise everything (including your own thoughts), be ready to be surprised, a strong sense of urgency is contagious, rarely will curiosity waste time, listen hard because Mother Nature rarely shouts, and most importantly, never lose sight of the big picture – patients with cancer (and their families and friends) are counting on us to make real differences.

Next Steps

Dr. Cogle plans to develop his anti-cancer treatment into a clinical pilot study. He will also begin to investigate other signaling pathways that attract bone marrow cells into cancer environments.

Follow-Up Funding

James & Esther King Biomedical Research Program Grant, Florida Department of Health (07/01/05 – 06/30/09; Amount: \$450,000). Define signaling pathways involved in marrow contribution to cancer blood vessels.