

Bankhead-Coley Cancer Research Program

Grobmyer, Stephen

*College of Medicine, Surgery
University of Florida*

*2009 Program
Bridge (1-year project)*

Project Title: Image Guided Hyperthermic Anti-Angiogenic Therapy for Breast Cancer

Project Summary: Breast cancer is a major health problem in Florida. Innovative, more effective, less invasive, and less toxic treatments for breast cancer are needed to reduce suffering. Cancer nanotechnology, which is a new field where very small, biocompatible objects with unique anticancer properties are engineered, has tremendous potential for revolutionizing breast cancer care. As breast cancer grows, it develops its own blood supply, which is required for its survival and ultimate spread. If this blood supply can be eradicated, then the cancer can be destroyed. In this interdisciplinary grant, we will design, create, and test novel biocompatible nanoparticles that are engineered to seek out and destroy tumor blood vessels. These tumor vessel-targeting nanoparticles (which can be imaged inside a living organism) will specifically destroy tumor vessels and not damage normal vessels or normal tissue. If successful, this will represent a new non-invasive, image-guided paradigm for breast cancer treatment. These concepts could then be rapidly translated into new treatments for patients with breast cancer providing hope to patients who previously had none. Moreover, we anticipate that these efforts will result in simpler medical procedures that will translate into lower costs for the patients and will enable greater access to highly effective methods for the detection and treatment of breast cancer for all Floridians, including underserved minorities and elderly populations.