

Bankhead-Coley Cancer Research Program

Judge, Andrew

*Applied Physiology & Kinesiology
University of Florida*

*2009 Program
New Investigator (3-year project)*

Project Title: Role of NF kappa B and Foxo in the Regulation of Muscle Atrophy Genes and Muscle Atrophy During Experimental Cancer Cachexia

Project Summary: One of the most serious consequences of cancer is cachexia – a condition characterized by a progressive and inexorable loss of lean body mass, which is a result of significant wasting of skeletal muscles. This muscle wasting leads to a pronounced loss of body weight, energy depletion, weakness, loss of functional independence, and reduced quality of life. Significantly, cachexia correlates inversely with the patient survival time and cachexia may be responsible for up to 20 percent of cancer-related deaths. Therefore, preventing cancer cachexia-associated muscle wasting is of significant clinical importance, yet there are currently no routinely used therapies to counteract muscle wasting. The long-term goal of our research program is to develop a specific and effective countermeasure to the muscle wasting associated with cancer cachexia. However, we must first understand the signaling pathways and target genes that regulate skeletal muscle mass during cancer cachexia. Therefore, the proposed work will use an experimental model of lung cancer to study muscle atrophy genes known to be up-regulated during cancer cachexia and determine if they are regulated by specific signaling pathways. We will further determine if inhibition of these pathways can prevent cancer cachexia-associated muscle wasting. Understanding the regulation of these atrophy genes is essential in making progress towards fulfilling the pressing need to develop therapies for the treatment of cancer cachexia.