James & Esther King Biomedical Research Program

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Medicine
University of Florida

2009 Program
Florida Research Challenge
(2-year project)

Project Title: Intratumoral Gene Therapy (ITGT) in Mouse Model for Lung Cancer

Project Summary: Tobacco smoke is a major risk factor for the development of lung cancer and accounts for 87 percent of lung cancer-related deaths in the U.S., and 80 percent of deaths are due to Non Small Cell Lung Cancer (NSCLC). The prognosis of patients with advanced or metastatic NSCLC is poor. Despite significant advances in diagnosis and treatment, little improvement has been seen in NSCLC mortality. Recently, Intratumoral Chemotherapy (ITC), a direct local delivery of chemotherapeutic drugs, has shown promise. However, toxicity and high dosage of chemotherapeutic agents used for treatment are a limitation. Moreover, these drugs damage indiscriminately, affecting cancerous as well as normal tissues. Thus, a novel therapeutic strategy that targets only malignant tissue sparing normal tissue has become an urgent issue. Targeting the tumor and sparing the normal tissue is the goal of this project. We have developed a novel method, Intratumoral Gene Therapy (ITGT) to target only tumor tissue by using EphrinA1 loaded albumin microspheres in mice bearing NSCLC tumors. The data obtained from this study offers an exciting avenue for the development of therapeutic drugs that may help treat NSCLC patients in Florida.