James & Esther King Biomedical Research Program

Blaber, Michael

Biomedical Sciences, Department of Medicine
Florida State University

2010 Program
Technology Transfer Feasibility
(1-year project)

Project Title: Development of Second-Generation Fibroblast Growth Factor-1 for Pro-Angiogenic Therapy

Project Summary: Tobacco use, even passive exposure, is associated with an increased risk of ischemic disease - a condition where blood vessels do not provide enough blood flow to support healthy tissue. This is commonly seen in blood vessels within the heart (coronary ischemia) as well as arms and legs (peripheral artery disease). The most effective current treatments for such disease include bypass grafts and balloon angioplasty. However, 10-20 percent of patients receiving such treatments do not improve. Additionally, a substantial number of patients with such ischemic disease cannot be treated by such methods. A new approach to treating such disease is to inject a “growth factor” protein into the affected area, causing the body to grow new blood vessels and supply the needed blood; this is termed “pro-angiogenic therapy.” Over the past several years clinical studies of such pro-angiogenic therapy have shown very promising results; however, there are technical difficulties in working with the growth factor protein. Our research involves designing new “second-generation” forms of the growth factor with properties that solve the difficulties. This grant is moving research into pre-clinical animal studies with the goal of identifying the best “second-generation” form to develop into a new drug to treat ischemic disease.