

Bankhead-Coley Cancer Research Program

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*Surgery
University of Florida*

*2010 Program
Research Project Grant
(5-year project)*

Project Title: Design, Synthesis, and Evaluation of Novel Selective Inhibitors of FAK and IGF-1R Function in Pancreatic Cancer

Project Summary: Pancreatic cancer (PC) is a leading cause of cancer death in the U.S., and there is no effective therapy. Human cancer cells grow and survive due to the overabundance of focal adhesion kinase (FAK) and insulin-like growth factor receptor-1 (IGF-1R). FAK interacts with IGF-1R, which contributes to the malignant behavior of PC. Our data shows that inhibition of both FAK and IGF-1R increases PC death compared to inhibition of either protein alone. While scientists are evaluating drugs that inhibit the enzyme function of FAK or IGF-1R, these drugs are not very specific or effective and result in increased side effects. Recently, the approach of inhibiting direct protein interactions rather than enzyme function has been shown to be effective. Our hypothesis is that the protein interaction of FAK with IGF-1R promotes PC growth and survival. Our studies will identify novel compounds that will prevent the protein interaction of FAK and IGF-1R. These compounds will have widespread effects by inhibiting the cellular processes that FAK and IGF-1R control including cell growth and survival. In addition, this effect will be specific for FAK and IGF-1R with minimal inhibition of other molecules, therefore, decreasing potential side effects of these compounds. Targeting FAK and IGF-1R protein interactions in PC will allow for the development of more specific and effective treatments for patients with this deadly disease.