

James & Esther King Biomedical Research Program

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Medicine
University of Florida

2010 Program
New Investigator Research
(3-year project)

Project Title: A Phase I Clinical Trial of the CDK 4/6 Inhibitor, PD 0332991, and Decitabine in Previously-Treated, Advanced NSCLC Patients

Project Summary: Lung cancer is the leading cause of cancer death worldwide. Smoking is the predominant risk factor. Despite the use of newer drugs, survival rates are poor. To improve survival while minimizing side effects, treatments need to be tailored to a patient's genetic profile. In this project, we aim to treat patients with a specific abnormality in their Retinoblastoma (RB) gene pathway. Abnormalities in the RB pathway are found in all patients with non-small cell lung cancer, the most prevalent type of lung cancer. We will conduct a clinical trial and laboratory experiments to study the efficacy of PD 0332991, a drug that blocks a specific protein in the RB pathway that is abnormally turned on, in combination with decitabine, an FDA-approved drug that targets this pathway by a separate mechanism. By including only patients with a specific tumor genetic profile, we anticipate a good response. Importantly, using genetic markers to define the patients that are likely to respond to therapy will also allow us to identify other genetic markers for potential resistance to therapy and allow for optimal planning for future studies. Benefits of the study include: 1) the evaluation of a novel drug combination in patients with specific tumor characteristics; and 2) laboratory studies evaluating other drugs to prevent the potential development of resistance. The project may thus significantly advance the personalized treatment of lung cancer.