

James & Esther King Biomedical Research Program

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Risk Assessment, Detection, and Intervention
H. Lee Moffitt Cancer Center & Research Institute

2009 Program
Bridge (1-year project)

Project Title: BRCA1 Status as a Marker of Clinical Outcomes in Lung Cancer

Project Summary: The main agents used for chemotherapy for lung cancer aim to prevent the growth of cancer cells. However, many patients suffer the serious side effects without experiencing a significant disease response. *Therefore, the identification of markers that can predict response to specific drugs is a top priority in lung cancer management.* Recently we provided results indicating that the status of two nuclear proteins can predict response to some chemotherapy drugs. Conspicuously absent from this predictive panel is a marker to predict response to drugs (taxanes) that target fibers used by the cells to divide genetic material.

We hypothesize that the status of a protein involved in cancer development (BRCA1) correlates with response to taxanes and can be developed as a predictor of drug response. Using a combination of studies in cell lines and in tumor tissues, we will determine the extent to which the status of BRCA1 correlates to response. This is significant because it is expected to fill in a gap in the treatment of lung cancer. The development of a panel of reliable predictors of response to drugs commonly used has the potential to change clinical practice and bring us closer to our long-term goal of delivering effective personalized medicine. Our long-term goal is to provide a panel of markers that can be evaluated in the biopsied material from the individual tumor. This evaluation will be performed in a fast and sensitive way and will result in a prediction of which drugs will be more or less effective for that individual patient.