

James & Esther King Biomedical Research Program

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*Medicine/Pulmonary
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*2009 Program
Florida Research Challenge
(2-year project)*

Project Title: The Airway Microbiome in COPD

Project Summary: The air passages are exposed to a variety of environmental factors including microorganisms. In healthy persons, the host defenses of the lung clear the microorganisms thereby preventing them from causing an inflammatory response that can damage the airways. It is known that cigarette smoke impairs the host defense system allowing colonization of the airways with microorganisms, and this could be one mechanism whereby cigarette smoke causes COPD. In this study, we are testing the hypothesis that the types of microorganisms harbored by the lung are different in smokers and non-smokers, and also different in smokers with and smokers without COPD. We will do this by obtaining secretions from the lung by bronchoscopy (an instrument that allows the operator to view the airways), determining the spectrum of microorganisms in them using a modern gene-based technology, and relating the microbial findings to the presence or absence of clinical COPD in smokers. Should such a relationship emerge in the study, therapeutic agents directed at selected microorganisms could be developed as a novel treatment for COPD.