

James & Esther King Biomedical Research Program

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*Research and Development
Bay Pines Foundation, Inc.*

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

Project Title: Investigating Cotinine to Improve Memory and Prevent Tobacco Abuse in Subjects with Cognitive Impairment Due to Psychiatric Disorders

Project Summary: Attention and memory are affected in conditions such as schizophrenia, Alzheimer's disease (AD), posttraumatic stress disorder (PTSD), and depression. In the U.S., more than 25 million individuals are affected by these conditions, and cognitive deficits greatly diminish their ability to work and socialize. Currently available medications do not target this problem. These mental health conditions are associated with higher tobacco consumption and a deficiency in the nicotinic acetylcholine receptors. It is believed that tobacco use is related to the self-administration of nicotine to reduce symptoms such as anxiety and feelings of depression, and to stimulate the nicotinic receptors to improve memory and attention. Cotinine, the main metabolite of nicotine, stimulates these receptors, improves memory in AD mice, reduces anxiety, and presents a good safety profile in humans. At the preclinical level, this project will investigate the use of cotinine on memory impairment induced by PTSD and schizophrenia using three mouse models of stress/PTSD and a drug-induced model of schizophrenia. This research will permit us to predict the utility of cotinine in reducing cognitive impairment and anxiety present in individuals with these mental conditions. This is intended to be a first step toward the investigation of cotinine in preventing or reducing smoking behavior in individuals with psychiatric conditions.