

James & Esther King Biomedical Research Program

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*Research & Development
Bay Pines VA Healthcare System*

*2010 Program
Postdoctoral Research Fellowship
(3-year project)*

Project Title: Antioxidant Transcription Factor Regulation and Alzheimer's Disease

Project Summary: In response to cigarette smoking, the human body produces detoxifying antioxidants to combat carcinogens. While these antioxidants are beneficial, sometimes they are not sufficient to prevent disease. Recent studies show that in addition to cancer, smoking may also increase a person's risk for Alzheimer's disease (AD). Alzheimer's is a progressive disease characterized by cognitive and memory loss, affecting almost 500,000 people in Florida and 25 million people worldwide. The reasons for the increased risk are not yet understood. One commonality between smoking and Alzheimer's disease is that the same antioxidant is affected. In moderate smokers, this factor is increased as a protective mechanism, but this protection is lost and a decrease in antioxidants is observed in heavy smokers. This same antioxidant is reduced in Alzheimer's patients, suggesting that the detoxifying enzymes may be the link between smoking and AD. This grant aims to further investigate which detoxifying enzymes are altered in AD, and whether increasing a specific factor will improve the prognosis of AD in a mouse model.