

James & Esther King Biomedical Research Program

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Prevention & Control*

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H. Lee Moffitt Cancer Center and Research Institute New Investigator (3-year project)

Project Title: Case-Control Study of Smoking and Human Papillomavirus Infection in Basal and Squamous Cell Carcinomas of the Skin

Project Summary: Non-melanoma skin cancer (NMSC) is the most common cancer among U.S. men and women and is associated with high treatment costs and an increased risk of developing other cancers. Sun exposure is an established risk factor for NMSC, and people who live in Florida are more likely to develop NMSC than people who live in northern US states. Despite what we know about the harms of sun exposure and increased use of sunscreen, the number of people getting NMSC continues to increase, emphasizing the critical need for identification of additional risk factors for NMSC that may clarify who is at high risk and help develop new ways of preventing NMSC. Results from previous studies suggest that cigarette smoking may be associated with NMSC. However, results are inconsistent across studies, possibly due to differences in important factors that were not measured. Specifically, infections with some types of human papillomavirus (HPV) that occur in the skin have been associated with NMSC, and preliminary data suggest that HPV may work together with smoking to promote the development of NMSC. This study will investigate the interplay between smoking and HPV infection as possible causes of NMSC. Specifically, 400 NMSC cases will be recruited from the University of South Florida Dermatology Clinic (USF) and compared to 400 controls recruited from both USF and H. Lee Moffitt Cancer Center's cancer screening facility. For all participants, smoking information will be obtained through questionnaires, and blood will be collected. Antibodies to the types of HPV that occur in the skin will be measured from the blood as markers of HPV infection. The goal of this research is to characterize the relationship between smoking and NMSC so that novel prevention strategies may be developed. The study will be the first U.S. study of smoking and NMSC to include markers of infection with HPV types that occur in the skin, and its findings will be of great potential public health significance, as smoking alone or in combination with other factors could be a novel target for the prevention of NMSC.