

Bankhead-Coley Cancer Research Program

Mohapatra, Subhra

*Internal Medicine
University of South Florida*

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

Project Title: Nanohole Sensor-based Detection Technology for Cutaneous Metastatic Melanoma

Project Summary: Based on the unique feature of nanohole array sensor-based detection technology (NST), it is hypothesized that NST can be exploited to develop a novel diagnostic and prognostic device for early detection of cutaneous metastatic melanoma, which is the most aggressive and has the worst prognosis of all skin cancers. The NST platform permits extraordinary optical transmission through metallic, sub-wavelength holes (nanoholes) that can be measured as surface plasmon (charge oscillations from reflected light) resonances (SPRs) by their angular distribution, reflected spectra, and intensity. To test this hypothesis, we plan to develop surface chemistry using SPR and nanohole array chip technology; to optimize assays and determine the limit of detection sensitivity plots for individual metastatic melanoma blood biomarkers, and to develop multiplexed NSTs for simultaneous detection of multiple melanoma antigens for early detection of metastatic melanoma.