**James & Esther King Biomedical Research Program**


## *Moy, Vincent*

*Physiology & Biophysics*
*University of Miami*


*2009 Program*
*Shared Instrument Grant*
*(1-year project)*

**Project Title:** Acquisition of a Nikon A1-R-SI Confocal Laser Microscope for an Integrated Confocal-AFM System


**Project Summary**: This confocal laser microscope is part of the University's Ultramicroscopy Core Facility and is a fully automated confocal imaging system, capable of capturing high-quality confocal images of cells and molecular events at high speed and enhanced sensitivity. The Nikon A1-R-SI in combination with an existing Asylum Research MFP-3D-BIO Atomic Force Microscope (AFM) forms a state-of-the-art, integrated confocal-AFM system. The integrated system is capable of simultaneously acquiring confocal images and AFM measurements of surface topography and cell elasticity from live cells. It is a versatile instrument that combines molecular resolution imaging and piconewton force measurements with the specificity of confocal microscopy. The integrated confocal-AFM system is shared by more than 25 users from 3 major user groups (Drs. Moy, Li, and Goldberg) and 3 minor user groups (Drs. Cote, Cheung and Leblanc). The projects that this shared instrument helps to support have relevance in the diagnosis and/or treatment of tobacco-related diseases including atherosclerosis, skin cancer, and stroke.