

## Bankhead-Coley Cancer Research Program

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*Molecular Biology*

*H. Lee Moffitt Cancer Center & Research Institute*

*2009 Program*

*New Investigator (3-year project)*

**Project Title:** Defining the Signaling Network of NRAS-Mutated Melanomas

**Project Summary:** Melanoma remains a great challenge. Despite over 30 years of research, we are currently unable to prolong the survival of patients whose melanoma has spread to other organ sites. It is now known that melanomas can be divided up into smaller groups, depending upon the genetic changes that initiate them. It is hoped that a greater understanding of these molecular changes will allow us to develop “personalized therapies” that selectively kill the melanoma cells while leaving normal cells unharmed. One group of melanomas that has been relatively ignored by the research community are those that activate mutations in a gene called NRAS. Mutations in the NRAS gene activate signaling pathways leading to the uncontrolled growth and survival of the melanoma cells. Little is currently known about the underlying biology of the NRAS-mutated melanomas, making it difficult to develop new therapy strategies. This grant aims to redress this balance by defining the nature of the molecular signals found in NRAS-mutated melanomas. Initially, this study will focus upon two pathways that are downstream of NRAS activity, the CRAF pathway and the PI3K pathway. We will use molecular tools, such as shRNA, to dissect the exact mechanisms the melanoma cells use to grow and survive. This information will then be used to develop new therapeutic strategies with the aim of improving treatment and survival of patients whose melanomas are activated by NRAS.