

Bankhead-Coley Cancer Research Program

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*Surgery
University of Miami*

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

Project Title: Role of MicroRNA in Mediating Oncogenetic Effect of Notch Signaling in Melanoma

Project Summary: Melanoma is the most dangerous skin cancer. The tumorigenic signals driving melanoma progression remain largely unknown. Notch signaling (a cell signaling system) has been demonstrated to be one of such driving forces. The Notch signaling pathway is active in human melanomas, and the activation of Notch signaling can promote melanoma progression to metastasis. However, the molecular mechanism underlying the tumorigenic effects of Notch signaling on promoting melanoma progression needs to be explored. We have recently found that seven microRNAs, (microRNAs regulate gene expression), were mis-expressed in response to Notch pathway activation in melanoma. We therefore propose that Notch signaling aberration causes the epigenetic alteration (changes caused by the activation and deactivation of genes without any change in DNA sequence) in microRNAs, which in turn mediate the Notch signaling-induced melanoma progression. The knowledge from this proposed study will greatly help us to identify innovative targets for melanoma diagnosis, prognosis, and therapy.