

Bankhead-Coley Cancer Research Program

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*Biochemistry and Molecular Biology
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*2011 Program
Team Science Program
(3-year project)*

Project Title: Epigenetic Basis of Neoplastic Progression in Human Cancers

Project Summary: Cancer arises and progresses due to alterations within DNA stemming from both changes in DNA sequence (genetic alterations) and DNA structure (epigenetic alterations). This Bankhead-Coley Team Science Project, an inter-institutional effort between investigators at the University of Florida and the Moffitt Cancer Center, is focused on understanding how epigenetic alterations impact the process of colorectal and cervical cancer progression and if these alterations can be used as markers to predict disease behavior. Project 1 focuses on discovering epigenetic events useful in the identification of women at risk of developing more aggressive forms of cervical cancer. This will be done using state-of-the-art molecular methodologies to measure DNA methylation at various stages of cervical cancer progression coupled with rigorous epidemiological analyses. Project 2 is focused on using an innovative technology developed by our group that examines DNA structure at the molecular level and will be used to study changes in DNA structure during colorectal tumor progression. Project 3 focuses on CTCF, a known epigenetic modulator, and how this molecule controls blood vessel development during colorectal cancer progression. This set of overlapping research projects will provide us with needed knowledge on how epigenetics impacts cancer progression, and has strong potential to discover molecular events that can be used clinically to predict tumor behavior at early disease stages.