

Bankhead-Coley Cancer Research Program

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*2010 Program
New Investigator Research
(3-year project)*

Project Title: Regulation of miR-155 by Oncogenic IRFs in EBV Latency and Associated Tumors

Project Summary: Virus infection accounts for up to 20 percent of cancers. Epstein-Barr Virus (EBV) was the first identified human cancer virus and is associated with a large range of malignancies of lymphocytic and epithelial origin. Interferon Regulatory Factors (IRFs) are a small family of transcription factors (proteins that bind to specific DNA sequences and regulate gene expression), some of which possess oncogenic properties. Interestingly, these oncogenic IRFs are associated with EBV latency, and may account for the regulation of cellular growth regulatory genes and even microRNAs (miRNAs). (MicroRNAs are a class of small non-coding regulatory RNAs that imperfectly bind to mRNA and regulate gene expression). miR-155 is an miRNA that has been implicated in many human B cell lymphomas including EBV-associated lymphomas, and like oncogenic IRFs, is associated with EBV latency. However, little is known about how miR-155 expression is regulated in cancers, and the relation between oncogenic IRFs and miR-155 in EBV latency and associated tumors has not been studied to our knowledge. The project will focus on: transcriptional regulation of miR-155 by oncogenic IRFs, the correlation between oncogenic IRFs and miR-155 in EBV latency and associated tumors, and the potential contribution of the IRFs/miR-155 interaction to EBV transformation. This research may lead to better understanding of IRFs-mediated tumorigenesis and may benefit the treatment of viral infection and prevention of cancers caused by viral infection.