



CANCER PREVENTION & RESEARCH INSTITUTE OF TEXAS

Award ID:
RP101017

Project Title:
Genetics of Osteosarcoma

Award Mechanism:
Individual Investigator

Principal Investigator:
Lee, Brendan

Entity:
Baylor College of Medicine

Lay Summary:

Osteosarcoma (OS) is one of the most common primary bone cancers and often occurs in either young people in their 10s and 20s or in older adults in their 60s and 70s. Unfortunately, our understanding of the genetic causes of osteosarcoma formation and spread is very poor. A first step in developing novel treatments is the understanding of different genetic pathways that are altered in the formation of this cancer. An important cancer gene is the p53 gene, which is mutated in more than 50% of human tumors. It has also been reported to be mutated in some sporadic osteosarcomas. Recently, our and other studies suggest that activation of another important genetic pathway, the Notch signaling pathway, may also contribute to the formation of human osteosarcomas and that inhibiting this pathway may be a novel treatment approach. More recently, a new class of molecules called microRNAs or "miRs" have been implicated in tumor progression. In our work, we hope to understand the genetic links between p53, miRs, and Notch signaling to develop a comprehensive picture of the genetic changes that lead to osteosarcoma formation. To do this, we will generate a series of different single and combined mutations in mouse models of these genes to determine whether osteosarcoma formation and progression is affected. Ultimately, we will develop treatment strategies to target these genes to determine if they are viable candidates for therapies in humans.