



CANCER PREVENTION & RESEARCH INSTITUTE OF TEXAS

Award ID:
RP160169

Project Title:
Molecular Mechanism of NLRP12-mediated Regulation of Colorectal Cancer

Award Mechanism:
Individual Investigator

Principal Investigator:
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Entity:
The University of Texas Southwestern Medical Center

Lay Summary:

Colorectal cancer (CRC) is the second leading cause of cancer related death in the United States. Although advanced diagnostic methods and therapeutic options significantly reduce death associated with this disease, recovery from stage III and IV of CRC remains very poor. This emphasizes the importance of further investigation of the molecular mechanisms of CRC pathogenesis and identification of regulatory pathway of this disease, which can be targeted for therapeutic intervention. Recently, we have demonstrated that intracellular pathogen recognition receptor NLRP12 is a negative regulator of colorectal tumorigenesis. However, the precise mechanism of NLRP12-mediated regulation of colorectal tumorigenesis remains elusive. We hypothesize that NLRP12 is a critical regulator of Wnt/b-catenin, the major cancer signaling pathway, involved in CRC. Mutations in the Wnt/b-catenin pathway genes have been detected in more than 80% of CRC patients. Therefore, understanding the regulatory mechanism of Wnt/b-catenin is critically important for the diagnosis, treatment and management of CRC. In this study, we aim to investigate the role of NLRP12 in the regulation of the Wnt/b-catenin pathway using animal models of CRC. We will also study the molecular mechanism of NLRP12-mediated regulation of the Wnt/b-catenin pathway. This study will explore a new regulatory mechanism of the Wnt/b-catenin pathway. Elucidating the NLRP12-mediated regulation of the Wnt/b-catenin pathway would open a new avenue of colon cancer research and offer manipulation of NLRP12 signaling as a potential treatment option for CRC.