



CANCER PREVENTION & RESEARCH INSTITUTE OF TEXAS

Award ID:
RP100561

Project Title:
Dissecting the Hippo tumor suppressor pathway in organ size control and stem cell proliferation

Award Mechanism:
Individual Investigator

Principal Investigator:
Jiang, Jin

Entity:
The University of Texas Southwestern Medical Center

Lay Summary:

During embryonic development, cell proliferation and cell death are tightly controlled to ensure the formation of organs of the appropriate size. In adult life, proliferation and differentiation of adult stem cells are tightly regulated during tissue repair in response to environmental insults so that proper replacement of damaged cells is achieved. Deregulation of the genetic programs or pathways underlying the control of these cellular processes during embryonic development and adult homeostasis can lead to excessive tissue growth and eventually tumor formation. We have recently identified a new tumor suppressor pathway called Hippo (Hpo) pathway that controls tissue growth and organ size by simultaneously inhibiting cell proliferation and promoting cell death. The Hpo pathway is evolutionarily conserved and involved in contact-dependent inhibition of cell proliferation. Deregulation of the Hpo pathway has been implicated in many human cancers. Most notably, inactivation of the Hpo pathway results in enlarged liver and eventually liver cancer. We are using a combination of genetic, molecular, cellular and biochemical tools to study the role and regulation of Hpo pathway during organ formation and adult tissue homeostasis. By identifying and characterizing new pathway components, our research will provide novel insights into this important but still poorly understood tumor suppressor pathway and identify new cancer causing genes as well as new drug targets. We expect that the knowledge gained from the proposed project will provide new avenues for cancer prevention and therapeutics.