



## CANCER PREVENTION & RESEARCH INSTITUTE OF TEXAS

Award ID:  
RP110040

Project Title:  
Inhibition of the Wip1 oncogenic phosphatase as an anti-cancer strategy

Award Mechanism:  
Individual Investigator

Principal Investigator:  
Donehower, Lawrence A

Entity:  
Baylor College of Medicine

### Lay Summary:

While many advances have been made in cancer treatments, a high fraction of cancers still fail to respond to classic therapeutic approaches. In the last decade, some new targeted therapies have been developed that have shown remarkable success in causing regression of cancers. Many targeted therapies specifically inhibit protein molecules that are high in quantity or activity in cancer cells but not in normal cells. The cancer cells become dependent or "addicted" to high activity of these proteins for growth and survival. The new therapeutic drugs inhibit the activity of these cancer proteins. Inactivation of the cancer protein by the drug thus prevents the tumor cell from growing and dividing, or may actually kill the cancer cell, with little ill effect on surrounding normal cells. Our laboratory is trying to discover new drugs or molecules that inhibit the activity of a protein called Wip1. Wip1 has been shown to be at high levels in some cancers and we believe this protein may promote the growth and division of the cancer cells. Through different types of experiments, we will try to show that inhibiting the Wip1 protein in cancer cells will prevent their growth and division or, even better, will result in cancer cell death. If we can show that inhibiting Wip1 has an anti-cancer effect, we will attempt to identify small molecules that inhibit Wip1 and can also be successful as drugs that can be used in human cancer clinical trials. We will also try to better understand the structure of the Wip1 protein so that it may be possible to rationally design drugs that will more effectively inhibit Wip1. Our primary goal is to identify, develop, and validate new drugs that will more effectively target certain types of cancer.