



## CANCER PREVENTION & RESEARCH INSTITUTE OF TEXAS

Award ID:  
RP100602

Project Title:  
TRIM24: a Dual Regulator of p53 and Estrogen Receptor

Award Mechanism:  
Individual Investigator

Principal Investigator:  
Barton, Michelle

Entity:  
The University of Texas M.D. Anderson Cancer Center

### Lay Summary:

We recently discovered a protein, named TRIM24, which is aberrantly over expressed in human breast cancers. Normally, TRIM24 is part of a regulatory system that maintains tumor suppressor p53 at low levels until it is needed to combat cellular stress or DNA damage. However, if TRIM24 is over expressed, p53 is unable to respond to these challenges and cells may accumulate damage, which eventually leads to cancer development. By itself, this could be bad enough but TRIM24 also has the ability to increase the activity of estrogen receptor in breast cells. High levels of TRIM24 expressed in breast cells increase estrogen receptor activities that push breast cells to proliferate and grow. We believe that these characteristics of TRIM24 pose a "double whammy" for breast cells and are part of the causes of breast cancer. Our goals are to understand why TRIM24 is over expressed in breast cancer cells and to define the specific parts of TRIM24 that form the crux of its activities. We will use both biochemical approaches and mouse models to achieve these goals. In the long term, these efforts will help us to design a therapeutic agent that inhibits TRIM24 and hopefully restores normalcy to p53 and estrogen receptor functions. A therapeutic that targets TRIM24 may offer a new avenue of treatment that complements current approaches in treatment of breast cancer.