



CANCER PREVENTION & RESEARCH  
INSTITUTE OF TEXAS

Award ID:  
RP100805

Project Title:  
Selective Mitochondrial Autophagy in the Protection Against Cancer

Award Mechanism:  
Individual Investigator

Principal Investigator:  
Wang, Jin

Entity:  
Baylor College of Medicine

Lay Summary:

Loss of autophagy genes causes a variety of cancers, suggesting that autophagy is an important mechanism in the protection against cancer. A Bcl-2 family member, Nix, is required for autophagy of mitochondria that have lost mitochondrial membrane potential. Nix deficiency leads to defective mitochondrial clearance and increased DNA damages. How autophagy of mitochondria protects against DNA damage and cancer has not been determined. Mitochondrial autophagy may play a critical role in the quality control of mitochondria. Defective autophagy could lead to the accumulation of dysfunctional mitochondria to produce reactive oxygen species and cause DNA damages, leading to increased genetic mutations and cancer. Experiments are proposed to determine the impact of defective mitochondrial autophagy in causing genetic mutations and the development of cancer. This study will shed lights on the roles for autophagy in the protection against cancer, and facilitate the development of novel approaches in cancer therapy by targeting autophagy.