



CANCER PREVENTION & RESEARCH INSTITUTE OF TEXAS

Award ID:
RP150166

Project Title:
Prostate Cancer Chemoprevention with Resveratrol

Award Mechanism:
Individual Investigator

Principal Investigator:
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Entity:
The University of Texas Health Science Center at San Antonio

Lay Summary:

In this proposal we are testing the ability of Resveratrol (RES) present in grapes, nuts and berries to prevent the progression of high-grade PIN (HGPIN) to clinical prostate cancer. Men who have HGPIN lesions in their prostate are at a high risk of developing clinical prostate cancer. This process takes many years therefore it is feasible to target disease progression with chemopreventive agents. Our laboratory has a rich history of testing naturally occurring chemicals from botanicals as chemopreventive agents. Published population-based case control studies showed a statistically significant decrease in relative prostate cancer risk in men consuming red wine, which also contains RES. However, RES itself has not been tested in a human prevention study and a few preclinical studies have tested RES as a therapeutic strategy. We believe that RES can be translated as a prostate cancer prevention agent if systematic studies are performed in relevant preclinical models. We propose that RES inhibits development and progression of HGPIN lesion and this is facilitated by autophagy-mediated cell death through modulation of a hitherto unknown mechanism that involves AMPK/SIRT1/S6K signaling axis. This application will use cell culture and humanized preclinical models that develop HGPIN lesions. Completion of the goals of this multi-institutional proposal will eventually have a significant influence on clinical practice. Because many small prostate tumors do not ever progress to clinical disease the current gold standard for treating men with such tumors is to put them on 'watchful waiting' where they wait until their PSA begins to rise. However this is an extremely anxiety-filled treatment strategy that affects mental and physical wellbeing of these men. Introduction of an intervention agent that can both prevent progression of early lesions to clinical cancer and reduce the anxiety of men on this strategy will lead to a change in clinical practice.