



## CANCER PREVENTION & RESEARCH INSTITUTE OF TEXAS

Award ID:  
RP120290

Project Title:  
Targeting hedgehog pathway for prostate cancer treatment

Award Mechanism:  
Individual Investigator

Principal Investigator:  
Sun, Luzhe

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

### Lay Summary:

Prostate cancer (PCa) is the leading cancer diagnosed and the second cause of cancer death in American men. Patients with metastatic prostate cancer (PCa) are often treated first with androgen deprivation therapy, but will invariably develop hormone therapy refractory PCa. Chemotherapy is the frontline of therapy for hormone therapy refractory PCa, but has not been very effective due to the development of chemo-resistance. Furthermore, therapeutic approaches for hormone therapy refractory PCa are very limited. The overall goals of our proposed research are to elucidate how androgen-dependent PCa becomes androgen-independent and resistant to chemotherapy during androgen deprivation therapy. A few recent publications and our preliminary studies indicate that the hedgehog signaling pathway can be activated during hormone deprivation therapy and may support the growth and progression of the hormone refractory PCa. We propose to investigate how hedgehog signaling may promote PCa cell growth, survival, and dissemination, and may confer resistance to chemotherapy. We will further investigate whether a novel hedgehog inhibitor developed by a pharmaceutical company can be utilized to block the progression of hormone refractory PCa in animal models of PCa. Our proposed research will likely reveal an important mechanism that supports the progression of hormone refractory PCa. It will also provide insight on whether the inhibition of hedgehog signaling pathway has potential to become a novel therapy for the treatment of hormone refractory PCa.