



## CANCER PREVENTION & RESEARCH INSTITUTE OF TEXAS

Award ID:  
RP130315

Project Title:  
Inhibition of TGF $\beta$  signaling by nuclear receptor COUP-TFII results in aggressive prostate cancer growth and metastasis

Award Mechanism:  
Individual Investigator

Principal Investigator:  
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Entity:  
Baylor College of Medicine

### Lay Summary:

Patients with breast or prostate cancer, as with most cancers, die when their cancer metastasizes to vital organs of the body, such as the lung. For metastasis to occur, the tumor cells must first proliferate and invade the surrounding tissues. In our laboratory, we study the role of COUP-TFII in cancer growth, invasion, and metastasis. COUP-TFII is a member of the nuclear receptor superfamily, which is one of the best families of proteins that can be targeted with drugs for disease therapy. Our recent studies demonstrate that COUP-TFII acts as a central coordinator for both tumor growth and metastasis by controlling multiple signaling steps both within the cancer cell and its surrounding microenvironment. These novel insights drive our research to identify and characterize chemical compounds that inhibit COUP-TFII activity. This will provide new chemotherapeutic treatments to manage this devastating disease. Therefore, we predict that the COUP-TFII inhibitors represent a new class of pharmacotherapeutics that will block tumor growth and metastasis from within the tumor cell as well as the microenvironment that supports tumor expansion, invasion, and ultimately metastasis. Targeting COUP-TFII represents a more effective treatment design than conventional approaches which usually only target one component of the tumor progression program. Using cell culture systems along with prostate cancer mouse models, our study design entails the systematic screening for specific COUP-TFII inhibitors, which will be validated for their efficacy and lack of side-effects *in vitro* and *in vivo*. Our proposed studies are highly significant as they exploit a novel target (COUP-TFII) for the treatment of primary and advanced cancer progression.