1) **Androgen receptor, vitamin D and prostate cancer:** We are examining roles of novel corepressors that reduce gene transcription for E2F1, which is a key cell cycle regulatory factor, in response to vitamin D3 signaling, thus impeding prostate tumor growth.

2) **Virus-targeted apoptosis of prostate tumor cells:** We show that the respiratory syncytial virus (RSV) targets human prostate tumors for destruction through apoptosis. Current studies aim to delineate the signaling pathway that is activated by RSV to trigger apoptosis.

3) **Aging, oxidative stress and androgen action:** Oxidative stress and normal aging reduces androgen receptor expression by a transcriptional mechanism that involves reciprocal chromatin dynamics of poly(ADP-ribose)-polymerase (PARP-1) and the tumor suppressor. Our research aims to understand the significance of PARP-1 activity in the androgen receptor function related to prostate cancer, and in normal liver metabolism and muscle growth.

4) **Role of microRNAs and target proteins in prostate cancer:** We identified a novel microRNA which targets a protein that is present in embryonic stem cells and in adult prostate cells. Our study aims to understand the function of this stem cell related protein and its regulator microRNA in the adult prostate stem cell and in prostate cancers in human patients.

**Key Publications:**


