# Vitamin D Stimulates the mRNA Expression of ACPP in LNCaP Cells

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Studies have shown an inverse correlation between prostate cancer incidence and ultraviolet (UV) exposure by region. Vitamin D (1,25(OH)2D3) is a seco-steroid hormone that is absorbed into the skin by sun exposure or by eating dietary foods. This form of vitamin D metabolites and analogs induced cell cycle arrest, and differentiation in normal cells and prostate cells. Vitamin D has already been studied as a chemo-preventative agent but this project is to determine whether vitamin D can be beneficial as a treatment option for prostate cancer. Prostatic acid phosphatase (PAP), encoded by the gene ACPP, is an enzyme produced primarily by the prostate in males and is over expressed in patients with metastatic prostate cancer. The ACPP gene is alternatively spliced into several different isoforms, including a secreted form, cytosolic form, and transmembrane form. Reverse transcriptase polymerase chain reaction (RT-PCR) was performed to understand the differing ACPP splice variants that are present in human LNCaP cells during regular growth conditions. After compiling results of the gene ACPP in its regular growth conditions, RT-PCR was performed to test the relative change of ACPP in response to vitamin D. ACPP was found to be highly expressed in response to vitamin D at all-time points in the secreted isoform of ACPP, indicating that ACPP can be a direct target of vitamin D, and with further study may allow vitamin D to work synergistically with immunotherapy to eradicate metastatic prostate cancer cells.

**Awards Won:**