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The long-term objective of the research program in my laboratory is to understand molecular and cellular mechanisms involved in development, progression and dissemination of prostate cancer using *in vitro* cell culture and *in vivo* pre-clinical animal models.

Research conducted in my laboratory identified transcriptional activation of genes associated with proliferation (Cyclin D1), inflammation (Cox-2) and apoptosis (FLIP) in prostate cancer development and progression. In addition these molecules also contribute to the development of resistance to apoptosis inducing agents leading to development of hormone refractory prostate cancer (HRPCA). Therefore our goal is to understand the (i) signal transduction pathways involved in the transcriptional activation of Cyclin D1, Cox-2 or FLIP and associated downstream cellular processes and (ii) mechanisms through which FLIP or Cox2-mediated resistance to apoptosis contributes to the development of HRPCA. These findings will have significant use in prostate cancer prevention efforts. Our laboratory is involved in the identification and development of novel agents from natural products including curcumin, eugenol and resveratrol either alone or in combination that target these deregulated signaling pathways. My laboratory uses numerous cutting edge technologies including magnetic resonance imaging (to monitor *in vivo* tumor development), chromatin immunoprecipitation, and gene and proteomic arrays combined with functional assays.

