

## Natural Product Analogs as Inhibitors of Prostate Cancer Cell Proliferation

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Prostate cancer is an extremely common form of cancer and the incidence approaches 95% in elderly men. Treatment options include surgery, radiation and chemotherapy and these options and, therefore, the mortality rate has not appreciably changed in almost thirty years. New treatments and adjunct treatments are needed if the cure rate of this cancer is to improve. Our laboratory is screening analogs of promising natural products as possible chemotherapeutic agents.

The compounds that we are testing were synthesized in the laboratory of Dr. Maryam Foroozesh, Xavier University. Several natural products such as curcumin and eugenol have been shown to be effective inhibitors of cell proliferation in prostate tumor cells in high doses. By modifying selected functional groups, we hope to improve the inhibition. Compounds which show inhibition of cell growth in cell will be sent to Addanki Kumar at the University of Texas Health Science Center, San Antonio, TX, for testing in a mouse model system.

The objectives of this project is to test a series of curcumin, capsesin, and eugenol analogs with prostate cancer cell lines, including DU 145 and PC-3, in a colorimetric cell proliferation assay. Those compounds that show good inhibition of growth in this assay will be tested to determine if the decrease in proliferation is due to cytotoxicity, induced apoptosis, or cell cycle arrest. This work is important in establishing which compounds are candidates for future study and to establish the mechanism of action of the compound to determine its best possible use in combined therapy.

Students who have completed general chemistry and introductory biology will be able to carry out this work. Knowledge of cell and/or molecular biology and biochemistry are useful but not necessary. This work requires strict attention to detail and the ability to follow protocols exactly.