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Review article

Molecular mechanisms of curcumin and its semisynthetic analogues in prostate cancer prevention and treatment

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Abstract

Primary prostate cancer, also known as prostate adenocarcinoma (PCa), is a devastating cancer in men worldwide. Europe and developing countries of Asia have fewer reported cases of prostate cancer compared to increasing cases in the United States with higher incidence in Black men. Risk factors associated with prostate cancer are aging, genetics, lifestyle, high body mass index as well as carcinogenic exposure to carbon-containing fuels, tobacco, and charbroiled meats. Hormone therapy and radical prostatectomy are commonly implemented treatments. The > 20,000 prostate cancer deaths of 2013 suggest that there exists a need for enhanced chemopreventive and therapeutic agents for prostate cancer treatment. Fruits, vegetables, and red wines contain high levels of polyphenolic levels. Consumption of these products may provide chemoprevention of PCa. Curcumin, the major compound from the turmeric rhizome *Curcuma longa* has long been used for medicinal purposes as an antiseptic and wound healing. This review focuses on curcumin's therapeutic effectiveness *in vitro* and *in vivo* in prostate cancer models. The