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External Qi of Yan Xin Qigong induces G2/M arrest and apoptosis of androgen-independent prostate cancer cells by inhibiting Akt and NF-kappa B pathways.

[Yan X](#), [Shen H](#), [Jiang H](#), [Zhang C](#), [Hu D](#), [Wang J](#), [Wu X](#).

Institute of Chongqing Traditional Chinese Medicine, Chongqing, China.

Long-term clinical observations and ongoing studies have shown antitumor effects of external Qi of Yan Xin Qigong (YXQG-EQ) that originated from traditional Chinese medicine (TCM). In order to understand the molecular mechanisms underlying the antitumor effects of YXQG-EQ, we investigate the effects of YXQG-EQ on growth and apoptosis in androgen-independent prostate cancer PC3 cells. We found that exposure to YXQG-EQ led to G2/M arrest associated with reduced cyclin B1 expression and apoptosis in PC3 cells. YXQG-EQ treatment inhibited constitutive and epidermal growth factor-induced Akt phosphorylation, basal and TNF-alpha-induced NF-kappaB activation, and downregulated anti-apoptotic Bcl-2 and Bcl-xL expression. In contrast, exposure to YXQG-EQ increased phosphorylation of Akt and Erk1/2 in human umbilical vein endothelial cells (HUVEC), and had no cytotoxic effect on either HUVEC or peripheral blood mononuclear cells (PBMC). These results indicate that YXQG-EQ has profound effects on growth and apoptosis of prostate cancer cells by targeting survival pathways including the Akt and NF-kappa B pathways.

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