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S-allylcysteine induces cell cycle arrest and apoptosis in androgen-independent human prostate cancer cells.

Liu Z, Li M, Chen K, Yang J, Chen R, Wang T, Liu J, Yang W, Ye Z.

Source: Department of Urology, Tongji Hospital, Tongji Medical College, Huazhong University of Science and Technology, Wuhan, Hubei 430030, PR China.

Abstract

To increase the use of phytochemical supplements as chemoprevention or adjuvant drugs in cancer treatment, it is necessary to verify their biological effects and correlative mechanisms. Recently, S-allylcysteine (SAC) was identified as a potent compound derived from garlic. The aim of this study was to evaluate the anticancer effects of SAC on androgen-independent human prostate cancer (PC-3) cells and to elucidate the possible mechanisms. PC-3 cells were incubated with SAC at three different concentrations. Cell growth was determined by Cell Counting Kit-8 and 5-ethynyl-2'-deoxyuridine assay. Cell cycle and apoptosis were determined by flow cytometric assay. The expression of apoptosis-related molecules was detected by Western blot analysis. We found that SAC suppressed the proliferation of PC-3 cells and led to cell cycle arrest at the G0/G1 phases, as well as inducing cell apoptosis which was accompanied by the decreased expression of Bcl-2 and increased expression of Bax and caspase 8. This study demonstrated the chemopreventive activity of SAC in vitro, and that SAC may be a promising candidate for prostate cancer treatment.

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