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


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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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