

Unique Formosan Mushroom *Antrodia camphorata* Differentially Inhibits Androgen-Responsive LNCaP and -Independent PC-3 Prostate Cancer Cells

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摘要

Abstract

Antrodia camphorata (AC), a precious and unique folkloric medicinal mushroom enriched in polyphenolics, isoflavonoids, triterpenoids, and polysaccharides, has been diversely used in Formosa (Taiwan) since the 18th century. In this study, prostate cancer (PCa) cell lines PC-3 (androgen independent) and LNCaP (androgen responsive) were treated with AC crude extract (ACCE) at 50 - 200 μ g/mL, respectively, for 48 h. At the minimum effective dose 150 μ g/mL, LNCaP showed a G1/S phase arrest with significant apoptosis. Such dose-dependent behavior of LNCaP cells in response to ACCE was confirmed to proceed as Akt \rightarrow p53 \rightarrow p21 \rightarrow CDK4/cyclinD1 \rightarrow G1/S-phase arrest \rightarrow apoptosis, which involved inhibiting cyclin D1 activity and preventing pRb phosphorylation. In contrast, being without p53, PC-3 cells showed a G2/M-phase arrest mediated through pathway p21 \rightarrow cyclin B1/Cdc2 \rightarrow G2/M-phase arrest, however, with limited degree of apoptosis, implicating that ACCE is able to differentially inhibit the growth of different PCa cells by modulating different cell cycle signaling pathways. We conclude that this unique Formosan mushroom, *A. camphorata*, due to its nontoxicity, might be used as a good adjuvant anticancer therapy for prostate cancers despite

its androgen-responsive behaviors, which has long been a serious drawback often encountered clinically in hormonal refractory cases treated by antihormonal therapies and chemotherapeutics