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Salinomycin Induces Apoptosis in PC-3 Human Prostate Cancer Cells via G1 Cell Cycle Crrest and Ca^{2+}-Dependent Mitochondrial Pathway

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Salinomycin is a polyether organic anion that is extensively used as microbial antibiotics. However, there is limited information on the effect of salinomycin on human prostate cancer cells. In the present studies, the effects of salinomycin on PC-3 human prostate cnacer cells were examined to better understand its effect on apoptosis and associated possible signal pathways in vitro. Apoptosis induction, cell cycle, reactive oxygen species (ROS), cytoplasmic Ca2+, mitochondrial membrane potential (MMP) were analyzed using the flow cytometric assay. Also, apoptosis-related proteins, such Bax, Bcl-2, caspase-3, PARP, and cell cycle-dependent proteins were determined by western blotting. As shown that, salinomycin promted the levels of Bax, Caspase-3 and reduced the level of Bcl-2, which were associated with the induction of apoptosis death of PC-3 cells. And salinomycin reduced the level of cell cycle dependent proteins. Salinomycin treated of cells results in mitochondrial depolarization, second mitochondrial activator of caspase release. Also, Ca2+ is involved in mitochondrial depolarization during salinomycin induced apoptosis. Our data suggest that Ca^{2+} modulates salinomycin-induced cell death via a Ca2+-dependent mitochondrial death pathway in PC-3 cells.

Key words: Salinomycin, Prostate cancer cell, Apoptosis, Ca^{2+}

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Roles of KRPs Genes in Plant Morphogenesis

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As plants grow, cell division plays a key role in proper development and appropriate shape. Recent study of Kip-related proteins (KRPs), which are inhibitor of cyclin-dependent kinase (CDK), indicated that negative regulation of cell division plays an important role in plant morphogenesis. To investigate how KRPs affect plant morphology, we have characterized transgenic plants overexpressing KRP genes. In this study, we have observed the common phenotype, for example, reduced sized leaves with serration and reduced fertility in transgenic plants of each type of KRPs overexpression. interestingly, the phenotype of bifurcate leaves with serration was oberved only in transgenic plants overexpressing Group III KRPs. In addition, rolling up and curvature phenotype of leaves was observed in transgenic plants overexpressing KRP6. Taken together, we will discuss about the roles of KRPs in the regulation of cell division in plant morphogenesis from our results.

Key words: Cell cycle, KRP, *Arabidopsis*