Resveratrol Alter Viability, Cell Cycle and Phosphorylation Profile of Mammary Cancer Cells

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Phosphorylation events in cellular signaling cascades triggered by a variety of cellular stimuli modulate protein function, leading to diverse cellular outcomes including cell division, growth, death, and differentiation. Abnormal regulation of protein phosphorylation due to mutation or overexpression of signaling proteins often results in various disease states, like cancer. *trans*-Resveratrol is a polyphenolic compound that seems to provide a protective effect against several types of cancer. The aim of this work was to investigate the effects of different concentrations of resveratrol on the viability, cell cycle and determine its effects on the phosphorylation profile of MCF-7 cells. LDH (lactate dehydrogenase) release assay showed that resveratrol decreased the cell viability of MCF-7 cells (IC_{50} = 100-150 μM). Based on flow cytometric analysis, 100 μM of resveratrol arrested cell cycle in the G1-S phase and, probably, it might contribute to decrease cell proliferation. Protein profile by SDS-PAGE was not modified by resveratrol treatment. Although, western blot analysis showed changes in the expression of phosphorylated proteins in tyrosine residues of high molecular mass and decrease the expression of some phosphorylated proteins in serine residues. These data suggest that resveratrol may have beneficial effects if used as a chemopreventive agent for breast cancer.
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