

**3-O-acetyloleanolic acid induce apoptosis via TRAIL-mediated signaling
in colon carcinoma cells**

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Objectives

3-O-acetyloleanolic acid (oleanolic acid 3-acetate) was isolated from *Vigna sinensis* K. It has a common structure of pentacyclic triterpenoid-type and belongs to the oleanolic acid group. The TRAIL-mediated apoptosis events of this compound were investigated in human colon carcinoma (HCT-116) cells.

Materials and Methods

○ Materials

3-O-acetyloleanolic acid was obtained from Natural Products Chemistry laboratory (Graduate School of Biotechnology, Kyung Hee University, Yongin, Korea). Human colon carcinoma (HCT-116) cells, originated spontaneously from human colon, were obtained from the Korea Cell Line Bank (KCLB, Seoul, Korea). MTT (3-[4,5-dimethylthiazol-2-yl]-2,5-diphenyltetrazolium bromide), dimethyl sulfoxide, propidium iodide and RNase A were purchased from Sigma. RPMI-1640 medium and FBS (fetal bovine serum) were purchased from Hyclone.

○ Methods

Culture of HCT-116 cells, MTT assay, FACS analysis, RT-PCR and western blot analysis.

Results

3-O-acetyloleanolic acid showed a dose-dependent cytotoxicity and increased the sub-G1 cell population in HCT-116 cells. TRAIL-mediated apoptosis-related proteins were analyzed by RT-PCR and western blot analysis. Taken together, our results indicated that 3-O-acetyloleanolic acid leads to TRAIL-mediated apoptosis signaling extrinsic pathway through death receptor 5 in HCT-116 cells.

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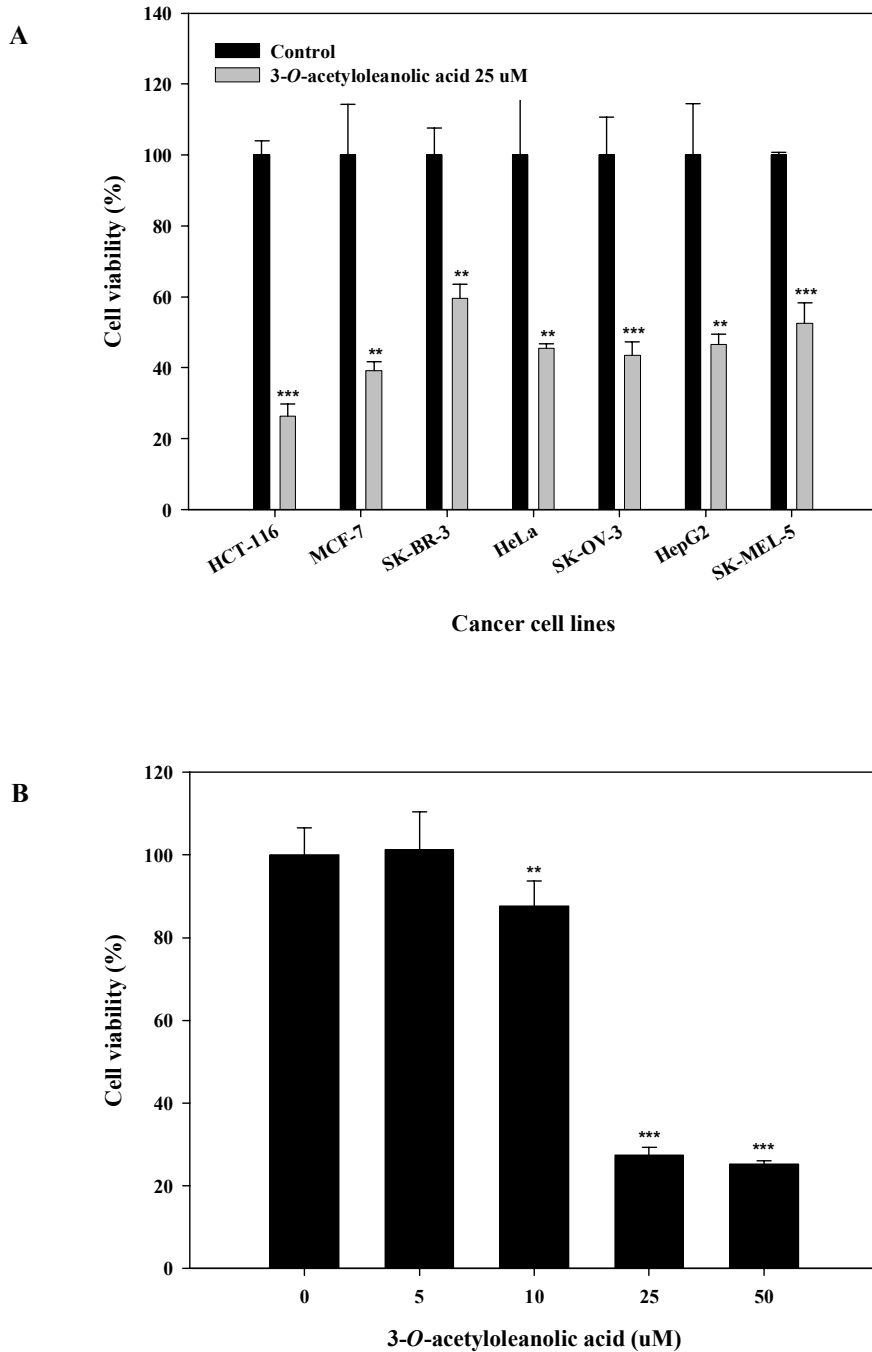


Figure 1. Effect of 3-*O*-acetyloleanolic acid in the cytotoxicity of various cancer cell lines (A). The HCT-116 cells were treated with various concentrations of 3-*O*-acetyloleanolic acid for 24 h and cell viability was determined by MTT assay. All data were represented as mean \pm S.D. of triplicates. Statistically significant differences compared with the control values were indicated using Student's *t* test (***) $p < 0.001$.