Ⅲ-3

In vitro and *in vivo* anti-cancer effects of 3-*O*-acetyloleanolic acid (3A-OA) and the extract containing 3A-OA from seeds of *Vigna sinensis*

Graduate School of Biotechnology, Kyung Hee University, Yongin 446-701, Korea
[1]Erom Life Co. Ltd., Seoul 135-825, Korea
Ki Hyun Yoo*, En Ji Cui, Jeon Hwang-Bo, Jong Hwa Park, Ji Young Kim,
Seong Gil Hong[1] Nam In Baek and In Sik Chung

Objectives

The anti-cancer effect of 3-*O*-acetyloleanolic acid (3A-OA) and the 3A-OA extracts from seeds of *Vigna sinensis* K., were investigated on *in vitro* and *in vivo* model.

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) and mouse colon carcinoma (CT-26) cells, were obtained from the Korea Cell Line Bank (KCLB, Seoul, Korea). RPMI-1640 medium, dulbecco's Modified eagle medium (DMEM) and FBS (fetal bovine serum) were purchased from Hyclone.

○ Methods

Cell culture, cytotoxicity assay, FACS analysis, Annexin-V analysis, real-time PCR, western blot analysis, measurement of tumor growth and immunohistochemical analysis.

Results

3-*O*-acetyloleanolic acid (3A-OA) showed a dose-dependent cytotoxicity and increased the sub-G1 cell population in HCT-116 cells. The number of immunostained cells with anti-Annexin-V-FITC was also increased. Expression of TRAIL-mediated apoptosis signaling-related death receptors were increased in 3A-OA-treated HCT-116 cells. Activation of caspase-8 and -3, critical mediators of apoptosis signaling, were also increased by 3A-OA. In addition, the extract containing 3A-OA suppressed the volume and weight of tumor in BALB/c mice subcutaneously implanted by CT-26 cells. These results indicate that 3A-OA leads to TRAIL-mediated apoptosis signaling extrinsic pathway though death receptors in HCT-116 cells and the extract containing 3A-OA has anti-tumoral activities against CT-26 colon carcinoma cells.

주저자 연락처 (Corresponding author) : 정인식 E-mail :ischung@khu.ac.kr Tel : 031-201-2436

* 시험성적

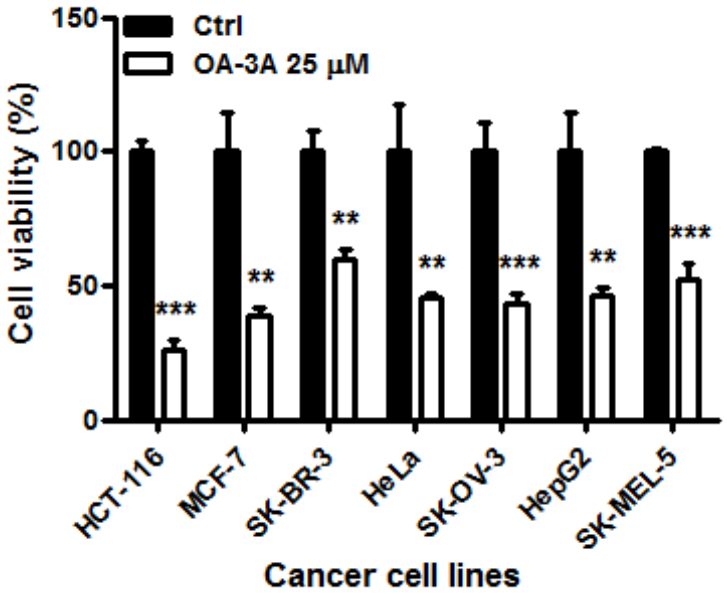

Figure 1. Effect of 3A-OA in the cytotoxicity of various cancer cells. 3A-OA inhibited the viability of seven cancer cell lines. Cells were treated with 25 μM 3A-OA. After 24 h of incubation, cell viability was assessed using an MTT assay. Data are presented as mean ± S.D. Statistically significant differences between treated and control cells were determined using Student's *t* test (** $p<0.01$, *** $p<0.001$).