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# *Anticancer Effects of the Aloe Vera*

## *Abstracts :*

### Aloemannan, Significant Antitumor Efficacy

**Winters**, Health Science Center, Univ. of Texas

In 1977 while conducting a series of animal experiments using aloemannan a mucopolysaccharide of Aloe arborescens, detected aloemannan a significant antitumor efficacy. Unlike usual anticancer drugs killing cancer cells directly, it acts as a stimulus for the body's defense mechanism, or immunity to suppress tumor. In other words, **it prohibits multiplication of cancer cells while it is coexistent with them**. Prof. Winters and his group of the Health Science Center at the University of Texas verified their test-tube experiments using human cervical cancer cells that Aloe vera extract prohibits the growth of cancer cells.

### The Preventive & Therapeutic Potential Of The Squalene-Containing Compound Roidex, On Tumor Promotion & Regression

**Desai KN; Wei H; Lamartiniere CA**
Department Of Pharmacology & Toxicology, University Of Alabama *Cancer Letters 101(1):93-6 1996 Mar 19*

Recent scientific evidence has shown free radicals or reactive oxygen species (ROS) to play an important role in the initiation and progression of cancer. Many radical scavengers have also been found to help reduce the attacks by these ROS. Interestingly, the ROS scavengers that have been investigated are naturally occurring compounds such as vitamins C and E. Roidex is a formulation of squalene, vitamin E, and Aloe vera. It was our goal to investigate whether Roidex was able to prevent the development of chemically induced cancer and to cause regression of any tumors already formed in a mouse skin model. In the prevention study, skin tumors were initiated in 50 female CD-1 mice with 7,12-dimethylbenz[a]-anthracene (DMBA) and promoted with 12-O-tetradecanoylphorbol-13-acetate (TPA). The mice were treated with either mineral oil, 5% squalene, or Roidex. At the end of the prevention study, there was a 33.34% incidence to tumors (multiplicity of 1.40) in the mineral oil-treatment group, 26.67% (multiplicity of 0.467) in the 5% squalene and Roidex groups, respectively. The tumor regression study involved the selection of mice with tumors and possible regression of these tumors with Roidex treatment. **There was a regression of 33.34% of the tumors in the Roidex-treated group** (39 tumors to 26 tumors) compared to the non-treated group whose tumors regressed only 3.44% (29 tumors to 28 tumors).

### Plant Lectin, ATF1011, On The Tumor Cell Surface Augments Tumor-Specific Immunity Through Activation Of T Cells Specific For The Lectin

**Yoshimoto R; Kondoh N; Isawa M; Hamuro J** *Cancer Immunol Immunother 25(1):25-30 1987*

The possibility that a plant lectin as a carrier protein would specifically activate T cells, resulting in the augmentation of anti-tumor immunity was investigated. ATF1011, a nonmitogenic lectin for T cells purified from Aloe arborescens Mill, bound equally to normal and tumor cells. ATF1011 binding on the MM102 tumor cell surfaces augmented anti-trinitrophenyl (TNP) antibody production of murine splenocytes when the mice were primarily immunized with TNP-conjugated MM102 tumor cells. The alloreactive cytotoxic T cell response was also augmented by allostimulator cells binding ATF1011 on the cell surfaces. These augmented responses may be assumed to be mediated by the activation of helper T cells recognizing ATF1011 as a carrier protein. Killer T cells were induced against ATF1011 antigen in the H-2 restricted

manner using syngeneic stimulator cells bearing ATF1011 on the cell surfaces. When this lectin was administered intralesionally into the tumors, induction of cytotoxic effector cells was demonstrated. These results suggest that intralesionally administered ATF1011 binds to the tumor cell membrane and **activates T cells specific for this carrier lectin in situ, which results in the augmented induction of systemic anti-tumor immunity.**

## *Aloe Vera* on
## Sarcoma 180 In ICR Mouse & Human Cancer Cell Lines

*Jeong HY; Kim JH; Hwang SJ; Rhee DK*, Coll. Pharm,
Sung Kyun Kwan Univ *Yakhak Hoeji 38 (3). 1994. 311-321*

Anticancer effects of Aloe on sarcoma 180 in ICR mouse or human cancer cells were determined. Sarcoma 180 cells were inoculated subcutaneously into male ICR mouse to determine effect of Aloe on tumor growth, or inoculated intraperitoneally into male ICR mouse to determine effect of Aloe on life span prolongation, followed by oral administration of Aloe vera (10 mg/kg/day, 50 mg/kg/day) or Aloe arborescens (10 mg/kg/day, 100 mg/kg/day) once a day for 14 days. The administration of Aloe vera or Aloe arborescens did not suppress tumor growth. However the life span of ICR mouse was prolonged to 19% (P lt 0.05), 22% (P lt 0.05), and 32% (P lt 0.05) by administration of Aloe vera 10 mg/kg/day, Aloe vera 50 mg/kd/day, and Aloe arborescens 100 mg/kg/day, respectively. To determine anticancer effect of Aloe in vitro, Aloe extract was added to the culture of human gastric cancer cells (SNU-1) and colorectal cancer cells (SNU-C2A), and concentration of Aloe to inhibit cancer cell growth was determined using MTT (3 - (4, 5-dimethylthiazol-2-yl) -2, 5-diphenyltetrazolium bromide) cytotoxicity assay. High ID-50 values of Aloe vera and Aloe arborescens against gastric cancer cell line (SNU-1) and colorectal cancer cell line (SNU-C2A) suggest that Aloe gel does not have anticancer effect on these specific human cancer cells **although high concentration of Aloe inhibited growth of human cancer cells significantly.**

**For further information about the Aloe Vera products,
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