

Conjugated linoleic acid (CLA) is a mixture of positional and geometric isomers of Linoleic acid, which is found preferentially in dairy products and meat. CLA is unique because it is present in food from animal sources, and its anticancer efficacy is expressed at concentrations close to human consumption levels.

Recently the published reports indicated that CLA was cytostatic and cytotoxic to the MCF-7 BUS human breast cancer cells in vitro. However at the mixtures of CLA and estrogen-like compounds, the effect by CLA of estrogen-like compounds induced cell proliferation is not yet understood. In the present study, the antiestrogenic activity of CLA on several estrogen-like compounds was examined in a MCF-7 human breast cancer cells.

In the MCF-7 BUS cell proliferation assay, CLA inhibited the growth of MCF-7 BUS human breast cancer cells in a dose (0.18-35.7 × 10<sup>-5</sup>M) and time dependent manner in culture. CLA was cytotoxic at the concentrations higher than 3.57 × 10<sup>-5</sup>M and significantly inhibited the cell proliferation at the concentrations lower than 1.78 × 10<sup>-5</sup>M.

To assess the antiestrogenic activity of CLA (1 × 10<sup>-5</sup>M) on several estrogen-like compounds, cell proliferation in the absence and presence of CLA was compared using E-SCEEN assay, which is based on proliferation of the estrogen-sensitive human breast cancer cell (MCF7-BUS). Results from the E-SCEEN assay showed that cell proliferation of estrogen-like compounds in presence of CLA compared to the absence CLA significantly inhibited adjust 70 - 75%. In addition, antiestrogenicity of CLA was determined by the MCF-7 focus assay and a whole-cell competitive binding assay which was examined for its ability of inhibition to bind the estrogen receptor of several estrogen-like compounds in

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### **Radioprotective effect of combined treatments of antioxidants in mouse jejunum and spleen**

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Radioprotective effect of combined treatments of antioxidants in mouse jejunum and spleen

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This study deals with the radiation protection effect of the pretreatment of two kinds of antioxidants on the morphological changes in mouse jejunum or population size of immune cells in mouse spleens after  $\gamma$ -irradiation. Six week old BALB/c male mice were irradiated with 6.5Gy of  $\gamma$ -radiation and were sacrificed after 30 days. The mouse jejunum was taken for morphological examination after Hematoxylin-Eosin (H-E) staining and spleen for population size of immune cells by FACS. Morphological results indicated that jejunum after irradiation showed changes such as a decrease of villi number and gland number compared with those of the non-irradiated group. In specific, a little damages were found in the mouse jejunum treated with combined treatments of antioxidants such as ascorbic acid, cysteine and tocopherol before 6.5Gy irradiation. In addition, the population size of spleen immune cells pretreated with combined treatments of antioxidants increased a little compared with that of the irradiated control group. However, treatment with single antioxidant resulted in the increase of the population cells like T cytotoxic cell and T helper cell. The combined treatment of antioxidants is less effective in radioprotection than the single treatment.