

## **【P1-23】**

### Effects of Retinoic Acid Isomers on Cell Signal Transduction in Human Breast Cancer Cell Lines.

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Effects of retinoic acid isomers (all-trans-, 13-cis-, & 9-cis-) on human breast cancer cells were investigated to see whether or not those influenced the balance between cell death signaling and survival signaling. In present studies, estrogen-receptor (ER) positive MCF-7 and ER-negative MDA-MB-231 human breast cancer cells weretreated with retinoic acid isomers, all-trans-, 13-cis-, & 9-cis-RA. The addition of 3 types of retinoic acid isomers to MCF-7 cells appeared to reduce the cell growth and to induce apoptosis. Especially, MCF-7 cells treated with all-trans-RA were increased a dose-dependent caspase activity, and released the cytochrome C from Mitochondria. However, retinoic acid isomers had not a significantly effect on ER-negative MDA-MB-231 cells and not a influence on NF-kB activity in both MCF-7 and MDA-MB-231 cells.

Recently researches, the relationship between retinoic acid and antioxidant system is studied, and many results about effects on retinoic acid on cellular oxidant damage are opposite to each others. So, treatment of MCF-7 cells with retinoic acid isomers, all-trans-, 13-cis-, & 9-cis-RA, showed that the SOD enzyme activities were general state but the catalase enzymes activities were decreased.

These results suggested that the rate of change between SOD activity and catalase activity may be showing the accumulation of H<sub>2</sub>O<sub>2</sub> in breast cancer cells and accumulation of H<sub>2</sub>O<sub>2</sub> may be relative to induction of apoptosis.

In conclusion, retinoic acid isomers showed anticancer effects by induction of apoptosis on breast cancer cells MCF-7 and all-trans retinoic acid was the most effector of retinoic acid isomers. (This work was supported by Korea Research Foundation)