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PRE-INITIATION TREATMENT OF INDOLE-3-CARBINOL (I3C) INHIBITS 7,12-DIMETHYLBENZ[a]ANTHRACENE (DMBA)-INDUCED RAT MAMMARY CARCINOGENESIS

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Indole-3-carbinol (I3C), one component of cruciferous vegetables (the Family of *Cruciferae*), has been shown to exert chemopreventive effects in liver, colon and mammary tissue, but there has been substantial evidence that consumption of I3C induces tumor promotion in some tissues. Our studies were investigated to examine the modifying effects of I3C in the 7,12-dimethylbenz[a]anthracene (DMBA) induced rat mammary tumor model. Fifty-two female Sprague-Dawley rats were randomly divided into five groups. Animals of the group 1 were given the diet containing 100 ppm I3C and animals of the groups 2 and 4 were given the diet containing 300 ppm I3C at 6 weeks of age. At 7 weeks of age, the animals of the groups 1, 2 and 3 were intubated with DMBA. All animals were killed at the age of 27 weeks of age. There were significant increases of food consumption in I3C feeding groups compared with those of basal diet feeding groups. The incidences of the mammary tumors in the group 1, 2 and 3 were 75.0% (9/12), 56.3% (9/16) and 93.8% (15/16), respectively and the average number of tumors of group 1 (DMBA + I3C 100 ppm: 2.08 $\pm$ 0.61) and 2 (DMBA + I3C 300 ppm: 1.190 $\pm$ 0.32) were significantly lower than that of group 3 (DMBA alone: 4.63 $\pm$ 0.72) at the value of $P < 0.05$ and $P < 0.001$, respectively. In the pathological examination of appearing tumors, most of them were adenocarcinoma. Many epithelial cells of tumors showed strong estrogen

receptor (ER) expression but there were no difference of ER expression among the groups 1, 2 and 3. We suggest that I3C has an inhibitory effects on mammary carcinogenesis induced by DMBA and it suggested that I3C might have a good action in the elimination of carcinogens prior to carcinogen treatment.