CATECHOL ESTROGEN RECEPTOR ASSAY OF 7,12-DIMETHYLBENZANTHRACENE (DMBA) INDUCED RAT MAMMARY TUMORS. M.Kishib, T.Tanah and A.Kubodera. Science University of Tokyo, Tokyo.

Catechol estrogens are the major metabolites of estrogen in human and animals. Recently, 2-hydroxyestradiol showed appreciable inhibition of tumor growth in DMBA induced tumor. Thus, we investigated the binding of catechol estrogens and estradiol to cytosol receptor of DMBA induced rat mammary tumors.

Female Donryu rats were given DMBA by gastric intubation. In mammary tumors of 14 rats, we carried out radio-receptor assay of catechol estrogens and determined their receptor concentrations and the affinity of their receptors using a Scatchard plot.

The receptor concentration of catechol estrogens was twice higher than that of estradiol in rat mammary tumor cytosol. On the other hand, affinity constants (Ka) of estradiol, catechol estradiol, and catechol estrone in rat mammary tumor cytosol were 2.81 x 10^9, 1.71 x 10^8, and 1.11 x 10^8 (M^-1), respectively. It is suggested that the binding activity of catechol estrogens is exhibited to the cytosol receptor of DMBA induced rat tumors.


Osteocalcin, bone gamma carboxylglutamic acid containing protein ( BGP), M.W.5,800, is currently studied in the metabolism of bone. The synthesis of osteocalcin is localized in the osteoblast. In the resorption of bone, osteocalcin is released into the blood. The assay of osteocalcin in blood was studied concerning about the daily dynamic analysis in the metabolism of bone disorders.

The assay of osteocalcin was performed using Osteocalcin Kit (INC, U.S.A.). The concentration of osteocalcin was increased with the aging; up to 14 years old in males, and upto 12 years old in females. After this, the concentration in the blood was decreased in both sexes. This convex curve was very similar to the height velocity curves and also corresponded to the concentration of 1,25 hydroxy-Vitamin D. The osteocalcin in the blood will be dependent of the growth in the pediatric group. Diurnal changes was found in the healthy adults, maximal and minimal concentration was observed in the night and daytimes, respectively. In the patients with renal failure, osteocalcin was increased; in the group of patients received maximal dosage of steroids, it was decreased. In the patients with osteonecrosis, osteocalcin was increased, but when treated it was normalized.

The assay of osteocalcin will be informative to study of the metabolism of bone.