구두발표 : OB - 7

형질전환 생쥐모델을 이용한 발암독성 대체시험법 개발

MMTV/c-Neu Transgenic mice is a useful model for the alternative method of chemical carcinogenesis.

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With over 80,000 chemicals in commerce, the human beings are exposed to chemicals through their use in wide variety of industrial and consumer products as well as these naturally occurring in food, drinking water and the air they breathe. While it is generally assumed that relatively few of these chemicals are likely to pose a significant risk to human health at the level of exposure that exist, the health effects of most of these chemicals are generally unknown. Thus, it becomes important to test chemicals for the health risk assessment. The conventional test guideline is 2-year bioassay using rodent, however, these guidelines permit sufficient flexibility to accommodate new knowledge and assessment methods. In this study, we are presenting a useful experimental transgenic animal model to analyze the carcinogenic toxicity for the carcinogen risk assessment. MMTV/c-Neu transgenic mice was activated c-Neu (erb B_2) oncogene under the control of mouse mammary tumor virus (MMTV) regulatory signal become available for the study of breast cancer. This model has a high incidence of mammary tumor development, which parallels that of human breast cancer, metastasizes by 7 months, and does not develop other histologic types of tumors in other tissues. The first tumor was observed from the 12 mg/kg ethynylestradiol treated MMTV/c-Neu transgenic mice

at the age of 24 week. At the age of 30 week, the tumor incident was calculated to be 70% for the 12 mg/kg ethynylestradiol treated mice. Histopathological examination showed that ethynylestradiol treated MMTV/c-Neu transgenic mice manifested higher mitotic and necrotic signs than control mice. In conclusion, ethynylestradiol-treated MMTV/c-Neu transgenic mice showed higher incidence as well as larger volume of tumor development, and also, earlier development of tumor and higher mitotic and necrotic signs than control mice.