D-37 Differential Expression of DNA Repair Gene, N-Methylpurine-DNA Glycosylase (MPG) during the Development of Balb/c Mice and SV40-T Antigen Expressing Transgenic Mice

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We investigated mRNA expression of N-methylpurine DNA glycosylase (MPG) in the developing Balb/c mice and thymic carcinoma in SV40-T antigen expressing transgenic mice. Age-dependent (0.5 day, 1, 2, 4, 8 wk and 6 month) and organ specific (brain, heart, kidney, liver, lung, muscle, spleen, stomach, testis, thymus) mRNA expression in Balb/c were investigated. MPG expression was very active in every tissue from 0.5 day to 1wk after birth and then gradually decreased until 6 months (adult) in every organs, except testis. In the testis, MPG expression was highest in 8 wks and maintained relatively stable expression until adult. MPG expression in thymus, brain, kidney, spleen, lung was very active at 0.5 day after birth and the level was relatively stable until adult, however, the expression in stomach, heart, liver, muscle was relatively weaker in adult than the other organs. Our results show that suckling mice have higher MPG mRNA level than young and mature adults. MPG expression in thymic carcinoma was 5-10 times higher than normal thymus. These data indicate an increased expression of MPG in the thymic carcinoma of the SV40-T antigen expressing transgenic mice. This is the first report on the inducibility of the MPG gene in mice.

D-38 Cloning and Characterization of Pregnant-induced cDNAs from Mouse Mammary Gland

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Mammary gland growth during pregnancy involves enormous increases both in branching of the ducts and in number of epithelial cells. During pregnancy, mammary epithelial cell proliferation is mediated by estrogen, progesterone, and growth factors. To understand the molecular mechanisms of mammary gland proliferation, pregnant-induced cDNAs from mouse mammary gland were cloned and characterized. After the primary differential screening of a total 20,000 pfu of pregnant-specific cDNA library, 100 positive plaques were isolated. Positive plaques were rescreened by PCR/Southern differential hybridization. Two clones were characterized by partial sequencing and Northern analysis. The expression of a clone that showed the 78% homology to the portion of mouse phospholipase A2 activating protein mRNA was induced at pregnancy day 15. Further induction of this gene was observed at pregnancy days 17 and 19. The highest levels were observed during lactation. The expression levels were slightly decreased at post lactation stage. The expression of a kappa casein-related mRNA was induced at pregnancy day 17, further induced at pregnancy day 19, and reached the peak at lactation. The expression was slightly reduced at mammary gland involution stage. [Supported by a grant from KOSEF (961-0607-065-2) and by HRC] .