

Changes in Expression of Glutathione Peroxidase 3 and Some Growth Factors in Neonatally DES-Exposed Mouse Vagina

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Neonatal treatment of mice with estrogens, including diethylstilbestrol (DES), induces estrogen-independent persistent proliferation and cornification of vaginal epithelium, resulting in tumor later in life. However, molecular mechanisms of these changes are not elucidated. To investigate genes related to the ovary-independent vaginal changes, we applied differential display/RT-PCR using RNA of mouse vagina on day 5, and examined mRNA expression of some growth factors. One of differential cDNA fragment was detected in only neonatally DES-exposed mice vagina, which was identical to mouse glutathione peroxidase 3 (GPx3), selenium-dependent enzyme that reduces hydroperoxides and organic hydroperoxides. GPx3 mRNA was highly expressed in vagina of mice exposed to 3 µg DES for 5 days from on day 0. In vagina of 60-day-old ovariectomized mice treated neonatally with DES, GPx3 mRNA expression was lower than that of ovariectomized controls. Neonatal DES-exposure, thus, may induce the change of anti-oxidant enzyme activity. We also found growth factors, such as EGF, TGF- α and HB-EGF were highly expressed in neonatally DES-exposed ovariectomized mice vagina, showing ovary-independent persistent proliferation and cornification.