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Adaptive Response in Chinese Hamster Ovary cells

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The present investigation has been performed to elucidate the effect of pretreatment with low-dose of ultraviolet-C radiation (UV-C), ethyl methanesulfonate (EMS) or bleomycin (BLM) on DNA single-strand breaks (SSBs) and sister chromatid exchanges (SCEs) in Chinese hamster ovary (CHO)-K1 cells treated with high-dose of mutagens. The rejoining of DNA SSBs in cells incubated for 4 hours following post-treatment with high-dose of UV-C, EMS or BLM is higher than that following treatment with high-dose of UV-C, EMS or BLM. And low-dose of UV-C, EMS or BLM decreased the yield of SCEs induced by subsequent treatment with UV-C, EMS or BLM. These results suggest that pretreatment with low-dose of UV-C, EMS or BLM appear effective in including the adaptive response.

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Identification of Genomic Clones for Mouse 3β-Hydroxysteroid Dehydrogenase/Δ^5-Δ^4 Isomerase

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The 3β-hydroxysteroid dehydrogenase/Δ^5-Δ^4 isomerase (3βHSD) is the key enzyme converting pregnenolone and dehydroepiandrosterone to progesterone and androstenedione. As a result, all steroid hormones such as aldosterone, cortisol, estrogen and testosterone can be synthesized by the activity of 3β HSD. Recently, cDNA clones were isolated and well characterized from human, rat, chicken and mouse. In mouse at least three types of cDNAs were isolated from testes and liver. Interestingly, it is reported that there are multiple genes for 3βHSD and they show tissue specific expression. To understand the mechanism of 3βHSD gene regulation, it is prerequisite to isolate genomic DNA fragments containing promoter regions for each corresponding genes. We here report the identification of several genomic clones from mouse genomic libraries using liver and testis cDNA probes. This study should facilitate our understanding on diseases due to 3βHSD deficiency.