

Application of X-Y dissociation in the primary spermatocytes of Mice as the *in vivo* Assaying System for Environmental Mutagens

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A sterile male mouse with high X and Y chromosome dissociation rate at stages from diplotene to first meiotic metaphase is described. The present experiment was carried out to investigate whether X and Y chromosome dissociation in the primary spermatocyte of mice can be used as an *in vivo* assaying system that detect the effects of environmental mutagens. Three kinds of alkylating agents which includes EMS, MMS, MMC are used for this purpose. 10.0 mM EMS, 10.0 mM MMS and 0.5 mM MMC were administered to BALB/C and ICR male mice 3-4 months old. In the control group, the mean frequencies of previously dissociated X and Y chromosomes and autosome were 7.34-7.45% and 0.92-1.04%, respectively. Compared to the control group, mutagen-treated groups have no significant differences in dissociation rate of autosomes. While this groups were about 2-3 times higher in the frequencies of X-Y dissociation. From the above results, it is suggested that X-Y dissociation in the primary spermatocytes of mice can be applied as an *in vivo* short-term assaying system for environmental mutagens.