

Testing a global screening method to probe the role of epigenetics in an experimental model of estrogen-dependent uterine

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Diethylstilbestrol (DES), a synthetic estrogen, was widely administered to pregnant women between 1947 and 1971 based on the misconception that it could prevent miscarriages. Consequently, at least four million women and their fetuses were exposed to the drug and the offspring often developed various reproductive tract abnormalities, including cancer. We focused this study on DES-induced abnormalities in the uterus. More specifically, we screened for altered DNA methylation patterns. DNA methylation is a major component of the currently high-profile topic of epigenetics. Epigenetic modifications are now viewed as just as important to the development of cancer as are DNA mutations. We use Syrian golden hamsters to study the consequences of early developmental DES exposure. This study used Methylation Sensitive Restriction Fingerprinting (MSRF) to screen for altered DNA methylation patterns in uteri from control vs. neonatally DES-treated hamsters. Preliminary results show differential DNA methylation patterns in uteri of control vs. DES-treated hamsters. Further studies will be done to determine the identity and functional significance of the differentially methylated DNA elements.