p53 and p21 mRNA and protein expression in treated synthetic oestrogen in mouse transgenic animal model

Abstract

Studies with Diethylstilbestrol (DES) in humans and rodents have resulted in a spectrum of toxic and carcinogenic effects. Previous findings on gene expression profiles following DES treatment showed that p53, p21 and bax was transcriptionally regulated in this model. In the present studies, we used Reverse Transcriptase in situ Polymerase Chain Reaction (RT in situ PCR) and immunohistochemistry techniques for localisation and expression of p53, p21 and bax at cellular levels. Animal were housed individually and treated with 500μmole/kg b.w of DES, (ip) once daily up to four days. Our results have shown, the expression of p53, p21 and bax mRNA were greater in wild-type compared to p53+/- knockout mice. In addition, p53, p21 and bax mRNA were significantly high in DES- treated compared to control-vehicle animals. Collectively, similar patterns of expression also were seen in p53 and p21 proteins and scored according to the percentage of positive nuclear staining. Therefore, the combination of p53 and p21 were concluded to be a good prognostic marker for development of carcinogenesis.

Keyword: Diethylstilbestrol; p53; p21; mRNA; RT in Situ PCR