In vivo expression of ß-galactosidase by rat oviduct exposed to naked DNA or messenger RNA

Mariana Ríos, Alejandro Venegas, and Horacio B. Croxatto

Abstract

Intra-oviductal administration of RNA obtained from oviducts of estradiol-treated rats resulted in accelerated egg transport (Ríos *et al.*, 1997). It is probable that estradiol-induced messenger RNA (mRNA) entered oviductal cells and was translated into the proteins involved in accelerated egg transport. In order to test this interpretation we deposited *in vivo* 50 µg of pure ß-galactosidase (ß-gal) mRNA, 50 µg of pure DNA from the reporter gene ß-gal under SV40 promoter or the vehicle (control oviducts) into the oviductal lumen of rats. Twenty four hours later the ß-gal activity was assayed in oviductal tissue homogenates using o-nitrophenyl-ß-D-galactopyranoside as a substrate. The administration of ß-gal mRNA and pSVBgal plasmid increased ß-gal activity by 71% and 142%, respectively, over the control oviducts. These results indicate that naked DNA and mRNA coding for ß-gal can enter oviductal cells and be translated into an active enzyme. They are consistent with the interpretation that embryo transport acceleration caused by the injection of estradiol-induced RNA in the oviduct involves translation of the injected mRNA.