Cell proliferation and tumor formation induced by eserine, an acetylcholinesterase inhibitor, in rat mammary gland

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Environmental chemicals may be involved in the etiology of breast cancer. There is substantial evidence that breast cancer risk is associated with prolonged exposure to female hormones. Among these hormonal influences a leading role is attributed to the ovarian hormone estradiol, since breast cancer does not develop in the absence of ovaries. The rat mammary gland has special characteristics that make it an ideal organ for studying development, cell proliferation and transformation. In vivo and in vitro model systems for cell proliferation and mammary carcinogenesis have allowed morphological and biochemical analysis under different experimental conditions. The aim of this study was to examine the effect of eserine, an acetylcholinesterase inhibitor, as are the organophosphorous compounds malathion and parathion, and 17? estradiol on cell proliferation and tumor formation that takes place in the rat mammary gland after in vivo and in vitro treatment. These studies showed that eserine a