

## **Neonatal/Prepubertal Exposure to Bisphenol A (BPA) and N-Butyl benzyl Phthalate (BBP) Alters the Rate of Cell Proliferation in the Rat Mammary Gland.**

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The xenobiotics bisphenol A (BPA) and n-butyl benzyl phthalate (BBP) have estrogenic activity and may have an impact on human health. These two chemical compounds are used widely in the industry and are commonly found in various consumer products as polycarbonate plastics, food cans and cosmetics.

In the present work we have investigated the effects of neonatal/prepubertal exposure to BPA and BBP on the proliferative activity of the rat mammary gland. Pregnant rats were maintained on a phytoestrogen-free diet, and after delivery the lactating mothers were gavaged with 250 µg BPA/kg body weight, 500 mg BBP/kg body weight, or an equivalent volume of sesame oil (control rats). Mammary glands of 10 female offspring per group were evaluated at 21, 35, 50 and 100 days of age for rate of DNA synthesis as a marker of cell proliferation by immunocytochemical detection of bromodeoxyuridine (BrdU) incorporation in epithelial cells present in various terminal ductal structures. The BrdU index was evaluated in terminal end buds (TEBs), alveolar buds (ABs), terminal ducts (TDs), and lobules type 1 (Lob 1).

BBP exposure significantly increased the rate of DNA synthesis in TEBs at 21 and 35 days of age, in ABs at 21days, and in Lob1 at 35 and 50 days of age. BPA exposure increased significantly the rate of DNA synthesis in Lob1 at 35d and 50d age. The observed changes in BrdU incorporation indicated that neonatal and prepubertal exposure to BBP and BPA have an effect on cell proliferation that is site and time specific. The relevance of these changes on cancer susceptibility is under investigation.

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