

Prenatal exposure to endocrine-disrupting chemicals linked to breast cancer

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A study in mice reveals that prenatal exposure to endocrine-disrupting chemicals, like bisphenol-A (BPA) and diethylstilbestrol (DES), may program a fetus for life. Therefore, adult women who were exposed prenatally to BPA or DES could be at increased risk of breast cancer, according to a new study accepted for publication in *Hormones & Cancer*, a journal of The Endocrine Society.

Endocrine-disrupting chemicals are substances in the environment that interfere with [hormone](#) biosynthesis, metabolism or action resulting in adverse developmental, reproductive, neurological and immune effects in both humans and wildlife. These chemicals are designed, produced and marketed largely for specific industrial purposes.

"BPA is a weak estrogen and DES is a strong estrogen, yet our study shows both have a profound effect on gene expression in the mammary gland (breast) throughout life," said Hugh Taylor, MD, of the Yale University School of Medicine in New Haven, Conn. and lead author of the study. "All estrogens, even 'weak' ones can alter the development of the breast and ultimately place adult women who were exposed to them prenatally at risk of [breast cancer](#)."

In this study, researchers treated pregnant mice with BPA or DES and then looked at the offspring as adults. When the offspring reached adulthood, their mammary glands still produced higher levels of EZH2, a protein that plays a role in the regulation of all genes. Higher EZH2 levels are associated with an increased risk of breast cancer in humans.

"We have demonstrated a novel mechanism by which endocrine-disrupting chemicals regulate developmental programming in the breast," said Taylor. "This study generates important safety concerns about exposures to environmental endocrine disruptors such as [BPA](#) and suggests a potential need to monitor women exposed to these chemicals for the development of breast lesions as adults."

More information: The article, "In Utero Exposure to Diethylstilbestrol (DES) or Bisphenol-A (BPA) Increases EZH2 Expression in the Mammary Gland: An Epigenetic Mechanism Linking Endocrine Disruptors to Breast Cancer," has been published online and can be found at: www.springerlink.com/content/547256j0g02073v5/

Provided by The Endocrine Society

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