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How Plastics Impact Boobs and Fertility from the Womb

The genetic "imprinting" of HOXA10

Many contaminants have a more subtle effect than simply killing cells. Some mimic hormones, like sex hormones. A team from Yale School of Medicine has presented at the 2008 Society for Gynecologic Investigation (SGI) Annual Scientific Meeting held on March 26-29 in San Diego, California, a study detailing how synthetic estrogen mimickers like those encountered in many plastics impact the developing fetus, provoking fertility issues, vaginal and breast cancers. Previous investigations have revealed that exposure to the synthetic estrogen diethylstilbestrol (DES) impacts the activity of HOXA10, a gene required for uterine development, boosting the risk of cancer and pregnancy issues in the later adult female offspring. The new research is focused on looking how a developing female fetus exposed to DES develops uterine cancer and other issues years following the exposure. DES is no longer found in marketed products, but it works just like similar synthetic estrogens. The team detected changes in the HOXA10 gene activity in the offspring of 30 pregnant mice injected with DES. The changes persisted into adulthood, pointing that exposure to DES and similar estrogen mimickers could cause genetic "imprinting." "We found that HOXA 10 protein expression was shifted to the bottom portion of the uterus in the female offspring. We also found increased amounts of the enzyme responsible for changes in the DNA. Rather than just changing how much of the protein is there, DES is actually changing the structure of the HOXA 10 gene. These findings bring us closer to understanding the way in which DES interacts with the developing reproductive system," said lead researcher Dr. Hugh S. Taylor, professor in the Department of Obstetrics, Gynecology & Reproductive Science and section chief of Reproductive Endocrinology and Infertility at Yale School of Medicine. By the moment, an estrogen mimicker of great concern is Bisphenol-A (BPA), abundant in household plastics.