

Protein from pregnancy hormone may prevent breast cancer

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Researchers have found that hormones produced during pregnancy induce a protein that directly inhibits the growth of breast cancer. This protein, alpha-fetoprotein (AFP), may serve as a viable, well-tolerated agent for the treatment and prevention of breast cancer, according to findings published in *Cancer Prevention Research*, a journal of the American Association for Cancer Research.

"Hormones in [pregnancy](#), such as estrogen, all induce AFP, which directly inhibits the growth of [breast cancer](#)," said lead researcher Herbert Jacobson, Ph.D., who is a basic breast cancer researcher in the Center for Immunology and Microbial Diseases and in the Department of Obstetrics, Gynecology and Reproductive Sciences at Albany Medical College, N.Y.

"The body has a natural defense system against breast cancer," he added. "AFP needs to be safely harnessed and developed into a drug that can be used to protect women from breast cancer."

Recent studies have shown that hormones released during pregnancy, such as estrogen, progesterone and human chorionic gonadotropin, reduce a women's risk for breast cancer. AFP is a protein normally produced by the liver and yolk sac of a fetus. Jacobson and colleagues sought to determine whether administering pregnancy hormones to carcinogen-exposed rats led them to produce AFP, which in turn produces the protective effect of pregnancy in the absence of pregnancy.

Results from this study showed that treatment with estrogen plus [progesterone](#), estrogen alone or human chorionic gonadotropin reduced the incidence of mammary cancers in rats. Furthermore, the researchers noted that each of these treatments elevated the serum level of AFP and that AFP directly inhibited the growth of breast cancer cells growing in culture, suggesting that these hormones of pregnancy are preventing breast cancer through their induction of AFP.

Cancer Prevention Research Editorial Board Member Powel Brown, M.D., Ph.D., said while these preclinical findings are important and suggest a role of AFP in breast cancer prevention, they are not yet ready to be used in the clinic.

"The researchers have not directly demonstrated the cancer preventive activity of AFP, instead they found an association of these hormones preventing mammary tumors. None of these treatments prevented mammary tumors in 100 percent of the rats, it appears to delay mammary tumor formation and prevent breast cancer development in approximately 30 to 50 percent of the rats," said Brown, professor of medicine and cancer prevention and clinical cancer prevention department chairman at the University of Texas M. D. Anderson Cancer Center.

"This study is promising and suggests that additional animal studies need to be done before translation to humans," he said. "We may want to further test AFP for its cancer prevention activity."

Jacobson and colleagues are currently conducting studies in which they have isolated a small piece of AFP molecule and are working to convert it into a breast cancer preventative agent.

Source: American Association for Cancer Research ([news](#) : [web](#))

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