# LAY ABSTRACT

TITLE: Rat Models of 17β-Estradiol-Induced Mammary Cancer Reveal Novel Insights into Breast Cancer Etiology and Prevention

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Estrogens are strongly associated with the risk of developing breast cancer. The ACI rat model of estrogen-induced mammary cancer was developed: 1) to study how estrogens contribute to breast cancer development, and 2) to evaluate strategies for preventing breast cancer. The ACI rat model is now being widely used within the breast cancer research community. Development of mammary cancers in ACI rats is driven by treatment with estradiol, a naturally occurring form of estrogen produced by the ovaries in both humans and rats, to maintain estrogen in blood at the peak level observed during pregnancy or the menstrual cycle in humans. Development of mammary cancer in the estrogen treated rats also requires progesterone, a second hormone produced by the ovary that also has been linked to the development of breast cancer in humans. This manuscript reviews research that used the ACI rat model and discusses how findings from those studies relate to breast cancer risk in humans. The studies show the value of the ACI rat model for defining how inherited gene variants and diet influence development of breast cancer. This ACI rat model is well-suited for studies that seek to understand how genes and the environment influence breast cancer development and should aid the research community in developing effective strategies for reducing breast cancer risk.