

LAY ABSTRACT

TITLE: The Mouse Mammary Gland: a Tool to Inform Adolescents About Environmental Causes of Breast Cancer

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Adolescence (the teenage years) is a vulnerable period of time when exposure to chemicals from the environment can increase the risk of developing breast cancer as an adult. Discussing breast health with adolescent girls can be difficult for several reasons. In this project, we worked to not only inform adolescent researchers about environmental risks for breast cancer, but to also allow them to participate in research studies. We taught adolescents about the stages of mammary gland (breast) development using mammary gland samples collected from mice, with a specific focus on the early and mid stages of sexual development (puberty). We taught these adolescent researchers to use special microscopes to examine the effects of environmental chemicals and hormones on mammary gland development. We found that adolescent researchers, given relatively modest training, can collect competent results concerning aspects of breast health that can be influenced by environmental chemicals. For some measurements, the adolescent researchers were as accurate as professional researchers. For other measurements, requiring more detailed knowledge, there was more error in findings reached by the adolescent researchers. Finally, we provided these adolescents with information about environmental risk factors for breast cancer that they could share with their peers and others in their communities to educate others about breast cancer risks and way to reduce those risks. We hope that researchers working in this field will engage adolescent researchers in projects to evaluate chemicals that influence breast cancer risk. There is evidence from prior studies that prevention efforts that begin during adolescence can reduce breast cancer risks and encourage healthy behaviors such as avoiding tobacco and alcohol use. Summer research programs that inform young adolescents about breast cancer risk

factors not only benefit these new researchers individually, but also benefit their communities when they are encouraged to talk about the value of scientific studies, discuss breast cancer risks, and share what they have learned about cancer and the environment.