

Ovarian cancer arises in fallopian tube of knockout mice

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(Medical Xpress) -- The most deadly form of "ovarian" cancer arises in the fallopian tubes – not the ovaries – of knockout mice that lack two genes associated with the disease, said researchers led by Baylor College of Medicine in a report that appears online in the journal *Proceedings of the National Academy of Sciences*.

"While many questions remain about the steps in the pathogenesis of this deadly disease in women, our study opens a new door to understanding the molecular origins and progression of high-grade serous epithelial cancer," said Dr. Martin Matzuk, vice chair and professor of pathology & immunology, molecular and human genetics, molecular and cellular biology, and pharmacology at BCM.

"Our mouse model will help us translate this information into direct patient care, changing the way we screen, diagnose, and treat this deadliest form of 'ovarian' cancer." Matzuk is also the corresponding author of the report and a member of the NCI-designated Dan L. Duncan Cancer Center at BCM.

Deadliest gynecological cancer

Ovarian cancer is the ninth most common cause of cancer among women and the fifth leading cause of cancer death. It is the deadliest gynecological cancer. High-grade serous epithelial ovarian cancer accounts for 70 percent of all deaths attributed to ovarian cancer. In

women, [fallopian tubes](#) are narrow sections of the female reproductive tract that connect the ovary to the uterus. During normal reproduction, oocytes that are ovulated from the ovary are fertilized in the fallopian tube.

However, in this study, Matzuk and his colleagues show that the disease that is typically called "ovarian" cancer does not arise within the ovary but instead from the fallopian tubes in mice that lack two genes – Dicer and Pten. Mutations in each gene have recently been shown to be altered in women with high-grade serious [ovarian cancer](#).

Hope to identify cellular markers

Further analysis of these mice show that the tumors originate in fallopian tube cells internal to the surface layer, called the stroma. "The study suggests that these epithelial cancers (those believed to arise from the cells that line body cavities and cover flat surfaces of the body) derive from stem cells in the stroma via a novel differentiation mechanism," said Dr. Jaeyeon Kim, first author on this report and a post-doctoral fellow in Matzuk's laboratory at BCM. "We hope to use our understanding of how these cancers initiate and grow to identify cellular markers that could help in early detection and screening for this deadly disease. We are also using the mouse model and cancer cells derived from these mice for discovering novel combinations of drugs to eradicate this deadly disease."

Provided by Baylor College of Medicine

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