Targeted cancer cell therapy may slow endometrial cancer

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There may be a way to slow the growth of endometrial cancer through targeted cancer cell therapy, according to new research from the University of Missouri School of Medicine.

This year, around 65,000 women are expected to be diagnosed with endometrial cancer, the most common cancer of the female reproductive organs. An increased risk in development for multiple human cancers is associated with mutations in the PTEN protein, which normally regulates cell division and growth. The mutation allows cells to multiply uncontrollably.

Using mice models, Krystina Dunston, research lab manager and NextGen Precision Health researchers Tae Hoon Kim and Jae-Wook Jeong, studied the use of targeted cancer cell therapy in mice with a PTEN mutation. They found that by targeting and silencing a specific gene expression, ERBB2, the chances of stopping tumor growth significantly increased. ERBB2 is one of the many genes that regulate cell growth.

"ERBB2 Targeting Reveals a Significant Suppression of Tumorigenesis in Murine Endometrial Cancer with Pten Mutation" was recently published in *Reproductive Sciences*.

"ERBB2 and PTEN are a part of different signaling pathways, but we believe they have a correlation in endometrial cancer," Dunston said. "The effect of ERBB2 targeting on endometrial cancer with PTEN mutation is essential to understanding the mechanisms of how tumors grow in this type of cancer."

Signaling pathways help amplify initial signals to cells, which trigger cell responses. This then acts similarly to the downstream effect, where the cell response causes another activation, and so on.

Slowing the growth of endometrial cancer keeps multiple treatment options available. Currently, the standard treatment is a hysterectomy. More advanced stages would require aggressive treatments like radiation therapy and chemotherapy.

"All of these treatments can affect fertility, which is why it is important to find alternative ways to treat and prevent this disease," Dunston said.

In addition to Dunston, Kim and Jeong, study authors from MU Health Care included Dr. Mark Hunter, a gynecologic oncologist and Dr. Eric Johannesen, a pathologist. Co-authors Jin-Seok Jung and Jung-Yoon Yoo also contributed.

More information: ERBB2 Targeting Reveals a Signifcant Suppression of Tumorigenesis in Murine Endometrial Cancer with Pten Mutation, *Reproductive Sciences* (2024). DOI: 10.1007/s43032-024-01546-3

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