Vascular marker of ovarian cancer identified

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Researchers have identified TEM1 as a specific genetic marker for the vascular cells associated with tumor growth, a finding that could aid in diagnosis and treatment of ovarian cancer.

"The laboratory of Dr. George Coukos is developing novel treatments for ovarian cancer which target the vasculature surrounding the tumor, thereby disrupting the blood supply needed for the tumor to grow," said Chunsheng Li, Ph.D., a post-doctoral research fellow at the University of Pennsylvania Ovarian Cancer Research Center.

Li presented his findings at the American Association for Cancer Research Molecular Diagnostics in Cancer Therapeutic Development meeting being held here September 22-25, 2008.

Ovarian cancer is the deadliest gynecologic cancer in the United States, largely due to the fact that there are no reliable methods for detecting ovarian cancer at an early stage, when cure is still possible. Li and colleagues found that high levels of TEM1 were correlated with decreased survival of ovarian cancer patients. Furthermore, all 52 samples of ovarian cancer examined were positive for TEM1 in the vasculature, while none of the control samples tested positive. This suggests that TEM1 is a specific marker for ovarian cancer, which may lead to a potential screening tool.

Li and colleagues have been addressing TEM1's diagnostic value both in vitro and in vivo. In vitro, they used polymerase chain reaction and immunohistochemistry analyses to determine the relative levels of

human TEM1 expression in ovarian cancer versus healthy human samples, and in vivo they developed PET imaging studies. Li's preliminary in vivo experiments with a new mouse model implanted with tumor vasculature that expresses human TEM1, demonstrated by PET imaging that a novel anti-TEM1 radiolabel probe could specifically detect a small number of TEM1-expresser cells.

Li said the specific expression of TEM1 by ovarian cancer tumor vasculature, is linked to poor prognosis and the development of new tools able to detect a small number of TEM1-expresser cells in vivo, will allow clinicians to more effectively target the tumor vasculature for diagnostic purposes as well as for treatments that could help halt the disease.

"This will have to be borne out in further studies, but if we can normalize the vasculature surrounding the tumor, we will have a better chance of eradicating the tumor," said Li.

Source: American Association for Cancer Research

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