

Ovarian cancer discovery deepens knowledge of survival outcomes

December 9 2013

Researchers in the Women's Cancer Program at Cedars-Sinai's Samuel Oschin Comprehensive Cancer Institute have identified a series of 10 genes that may signify a trifecta of benefits for women diagnosed with ovarian cancer and ultimately reflect improved survival outcomes.

The research, led by Dong-Joo (Ellen) Cheon, PhD, found that the 10-gene biomarker panel may identify the aggressiveness of a patient's disease, help predict [survival outcomes](#) and result in novel therapeutic strategies tailored to patients with the most adverse survival outcomes.

When a patient's tumor is identified as having elevated levels of these 10 specific genes, doctors may be able to better predict which treatments would be most effective, said Cheon, whose research was published in *Clinical Cancer Research*.

That is an important advance because [ovarian cancer](#) is the most lethal gynecologic [cancer](#) and is often diagnosed in later, more aggressive stages, resulting in poor prognosis and survival. These outcomes differ due to development of tumors that become resistant to chemotherapy. By identifying chemo-resistant tumors and identifying the risk of poor survival outcomes during the diagnostic process, investigators hope to extend lives and improve treatment responses for women with ovarian cancer.

"The ultimate goal is to use the 10-gene biomarker panel to develop a diagnostic kit that will identify patients with the most adverse outcome

and provide targeted [therapeutic strategies](#)," said Cheon. "Among the biomarkers identified, the gene COL11A1 was shown to be the most abundantly expressed in ovarian cancer progression. But when we blocked expression of COL11A1 in murine [cancer cells](#), tumor growth and spread was significantly reduced."

The 10-gene biomarker panel revealed another promising benefit. The 10 genes associated with the panel all share one common biological process—the formation of a collagen matrix around cancerous cells. This thick, collagen-rich matrix can protect cancer cells from the lethal effect of chemotherapy and serve as an incubator for increasingly aggressive cancer cells. Understanding how this collagen-rich environment may contribute to aggressive tumor cell behavior may ultimately lead to more efficient therapies.

"This data, based on the analysis of nearly 800 ovarian cancer patients, suggests that patients who have elevated levels of genes associated with the biomarker panel have shorter survival and more aggressive forms of disease," said Sandra Orsulic, PhD, senior author of this study, director of women's cancer biology in the Women's Cancer Program and associate professor in the Department of Obstetrics and Gynecology. "These findings indicate that even though patients present with the same disease stage at diagnosis, their survival outcomes differ."

The findings suggest that the 10-gene signature may have both predictive value and biological relevance that may be useful in treating [patients](#).

More information: *Clinical Cancer Research*. 2013 Nov 11: Collagen-remodeling gene signature predicts poor survival.

Provided by Cedars-Sinai Medical Center

Citation: Ovarian cancer discovery deepens knowledge of survival outcomes (2013, December 9)
retrieved 5 May 2024 from

<https://medicalxpress.com/news/2013-12-ovarian-cancer-discovery-deepens-knowledge.html>

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