

FEATURE

# Investigational blood-based assay could lead to earlier ovarian cancer detection

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Amy P.N. Skubitz

An investigational blood-based assay identified new potential biomarkers for ovarian cancer and, with a multiprotein classifier, may be able to detect early stages of the disease, according to study results.

“A blood-based assay could significantly improve the survival of patients if it identified [ovarian] cancers earlier,” **Amy P.N. Skubitz, PhD**, researcher at the University of Minnesota, and colleagues wrote.

*HemOnc Today* spoke with Skubitz about the need for a test such as this, the clinical implications of the findings, and what must be confirmed in subsequent research.

## Question: What is the need for a test like this

**Answer:** More than 14,000 women die of ovarian cancer annually in the U.S. Ovarian cancer is often referred to as ‘the silent killer’ because the symptoms are so vague that women are not diagnosed until the disease has progressed to late stages. In the earliest stages, ovarian cancer can be treated with a 5-year survival rate of more than 90%. However, in later stages, the 5-year survival rate decreases to about 30%. Currently, there is no blood test that is adequately sensitive or specific to screen women in the general population. A goal of the Ovarian Cancer Early Detection Program at the University of Minnesota is to develop tests that can be used in the clinic to detect the earliest stages of ovarian cancer.

## Q: How did you conduct the research?

**A:** Studies have shown that one protein biomarker is not sufficient to screen for ovarian cancer. For this reason, we have been using a new technology developed by a company in Sweden in which a patient’s blood can be tested for the presence of 92 oncology-associated proteins at once. In one of our earlier studies, we used a small number of serum samples and showed that this technology worked well for the known ovarian cancer biomarker CA125. The first step for this research was to collaborate with **Robert C. Bast Jr., MD**, Harry Carothers Wiess distinguished chair for **cancer**

research at The University of Texas **MD Anderson Cancer Center in Houston**. He generously provided us with serum samples from 61 women with advanced-stage ovarian cancer and 88 healthy age-matched women. We needed one drop of serum from each woman to have the University of Minnesota Genomics Center determine the levels of 92 cancer proteins in each of the samples. Our statisticians analyzed the data generated from these samples.

**Q: Can you elaborate on your findings?**

**A:** We found dozens of cancer-associated proteins present at significantly different levels in the serum of women with ovarian cancer when compared with healthy women. Most importantly, we developed a panel that consisted of CA125 plus five additional proteins that made it possible to tell when blood was from a woman with ovarian cancer or from a healthy woman.

**Q: What are the potential implications?**

**A:** If the blood-based test is ultimately proven effective, women at high-risk for ovarian cancer, as well as women in the general population, could be tested on an annual basis for levels of these proteins in their blood. Women would ultimately be able to find out if they had early-stage ovarian cancer. This would result in better survival rates.

**Q: What still must be confirmed in future research?**

**A:** The results from this study take us one step closer to developing a blood-based assay for ovarian cancer detection. We need many more serum samples to test in this platform to determine whether it will hold up for earlier stages of ovarian cancer. We also need to include the other subtypes of ovarian cancer in future research. Ultimately, we would like to test women prior to a diagnosis. Within the next year or so, we hope to demonstrate that this test will hold up in women with early-stage ovarian cancer, but we will need to validate this with hundreds of additional samples. Our ultimate goal is to have something available in the clinic 5 years from now.

**Q: Is there anything else that you would like to mention?**

**A:** This an example of team research that required the expertise of several statisticians, gynecologic oncologists and cancer biologists. The project could not have been done without the women who voluntarily provided blood for research purposes. This research has been funded for 3 years by grants from the Minnesota Ovarian Cancer Alliance, which is mostly comprised of ovarian cancer survivors. We are extremely grateful to all who have played a part in this research project. – *by Jennifer Southall*

**Reference:**

[Skubitz APN, et al. \*Cancer Prev Res.\* 2019;doi:10.1158/1940-6207.CAPR-18-0221.](#)

**For more information:**

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