

A Screening Method to Detect Ovarian Cancer

A highly accurate and minimally invasive diagnostic for the detection of early-stage ovarian cancer

Georgia Tech inventors have developed a screening method for detecting early-stage ovarian cancer. This technology was created using high performance mass spectrometry combined with a customized support vector machine (SVM)-based learning algorithm to identify unique serum biomarkers in patients with early-stage ovarian cancer compared to age-matched controls. A panel of 16 metabolites were identified and changes in the levels of these corresponded to early-stage ovarian cancer with 100% accuracy. This technology has been validated for high specificity and sensitivity for the select biomarkers within the patient cohort. The combined use of SVM machine learning and high-resolution mass spectrometry allows for the identification of unique patterns in large data sets/patient cohorts. Until now, it has been extremely difficult to develop a standardized screen for ovarian cancer due to extensive genetic diversity among patient tumors. Instead of looking at individual mutations, screening for metabolites that are closely associated with a certain cancer could allow for much higher predictive rate.

Summary Bullets

- Early stage detection
- Highly accurate
- Minimally invasive

Solution Advantages

- Early stage detection
- Highly accurate
- Minimally invasive

Potential Commercial Applications

- Detection of early-stage ovarian cancer

Background and More Information

Ovarian cancer is the 5th leading cause of cancer deaths among women in the U.S. If the cancer is diagnosed and treated before it has spread outside the ovary, the survival rate is around 92%. However, due to the asymptomatic nature of this type of cancer, it is typically not diagnosed until later stages of disease at which

point prognosis is very poor. Currently, only around 15% of all ovarian cancers are detected at an early stage, causing the overall 5-year survival rate for all types/stages of ovarian cancer to be around 45%. A reliable screening test for early-stage detection is urgently needed in order to improve patient outcomes.

Inventors

- Dr. John McDonald
Professor - Georgia Tech School of Biological Sciences
- Dr. Facundo Fernandez
Vasser Woolley Foundation Chair in Bioanalytical Chemistry - Georgia Tech School of Chemistry and Biochemistry
- David Gaul
Research Scientist II- Georgia Tech Department of Bioengineering and Bioscience

IP Status

: US10914740B2

Publications

, -

Images

Visit the Technology here:

[A Screening Method to Detect Ovarian Cancer](#)

<https://s3.sandbox.research.gatech.edu//print/pdf/node/3463>