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Serum biomarkers and ovarian cancer risk: Utility for early detection and prevention

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The management of ovarian cancer (OC) is difficult due to its rapid progression and the difficulty of detecting it early. Being able to detect OC early or being able to accurately identify high risk subjects for increased monitoring or for preventative surgery is critical to being able to reduce OC mortality rates. Using a non-targeted comprehensive metabolomics discovery platform, several candidate biomarkers were identified. Based upon these results, the major contributor to OC risk was hypothesized to be an overactive fatty acid desaturation and elongation system (a key process involved in cell proliferation). Low anti-inflammatory fatty acid, GTA-446 levels were also observed to contribute to OC risk. We have subsequently developed a simple metabolotype test that can be performed on a single drop of blood and have successfully completed two large independent validations – one from Japan (99 controls and 112 OC patients) and one from North America (1041 controls and 325 OC patients). The relative risk of OC in persons having the metabolotype versus not having the metabolotype was 80 in both studies with over 90% of OC subjects exhibiting the aberrant metabolotype. These biomarkers are based upon our unique prodrome detection technology, which identifies persons with specific metabolic abnormalities that precede the formation of specific cancers. This technology differs from traditional pathology-based cancer detection technologies in that persons who do not have these metabolic abnormalities are protected from getting the specific cancer identified by the test whereas persons exhibiting the metabolic abnormality have an elevated risk of the cancer.

Biography

Dayan Goodenowe has over 20 years of advanced laboratory, biochemistry and mass spectrometry discovery and development experience with an undergraduate degree in Chemistry, PhD in Medicine and 16 patents covering analytical technology, bioinformatics, disease biomarkers and targets and novel therapeutic drug compositions. He has the breadth of knowledge across all areas related to the biochemical understanding of disease and the practical implementation of diagnostic and therapeutic solutions to disease management. As a Founder, President and CEO of Phenomenome Discoveries Inc., he has built PDI into an ISO certified, FDA-compliant manufacturing facility and Phenomenome Laboratory Services Inc. (PLSI) into a CAP/CLIA certified laboratory.

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