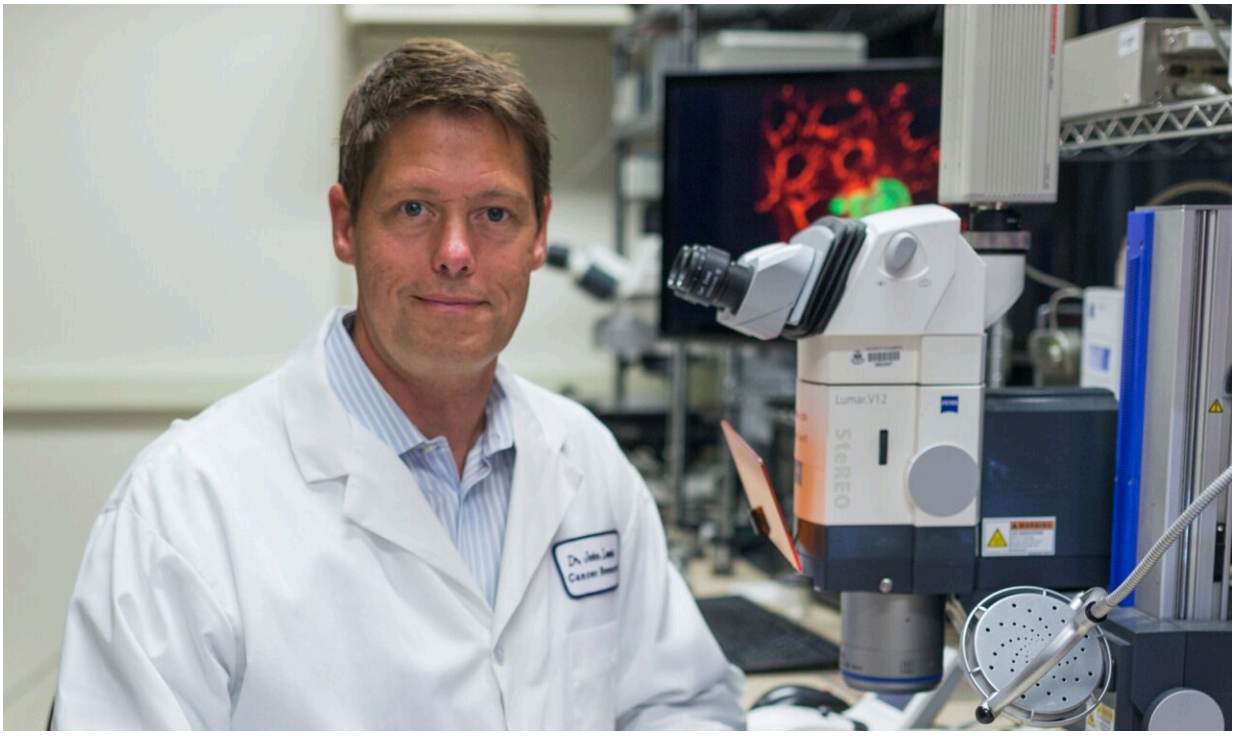
New test for prostate cancer could help avoid unnecessary biopsies

October 6 2023, by Gillian Rutherford



John Lewis is CEO of Nanostics, a company that has launched a blood test for prostate cancer based on technology his team developed at the U of A, which could reduce the need for more invasive tests for patients. Credit: Faculty of Medicine & Dentistry

Alberta men with elevated prostate-specific antigen (PSA) levels can now take a new blood test to determine their risk for clinically

significant prostate cancer and potentially avoid an unnecessary biopsy.

The PSA blood test is the standard screen for prostate cancer. When a patient's PSA is high, a biopsy is usually ordered to confirm the presence of cancer. However, an elevated PSA can sometimes be caused by non-cancerous factors such as age, infection or an enlarged prostate, as well as by lower-risk prostate cancer that may not require treatment.

The new test can now be used to give patients and their doctors more information so they can make informed decisions about whether to proceed to biopsy. Details of test have been published in *Cancer Medicine*.

"The ClarityDX Prostate test will reduce the number of unnecessary prostate biopsies, which are invasive, uncomfortable and carry some risk," says John Lewis, Bird Dogs Chair in Translational Oncology at the University of Alberta and CEO of Nanostics Inc., a U of A spinoff company.

The new test is the first product to launch that is based on technology developed at the U of A and patented by Nanostics. The technology measures levels of prostate cancer biomarkers in a patient's blood sample, combines that data with their clinical information, then uses machine learning to generate a risk score that predicts the presence of clinically significant prostate cancer.

In a recently published paper, the Lewis team examined findings for 415 Alberta men who had been referred to urology clinics for biopsies based on a high PSA result between 2014 and 2017. The ClarityDX Prostate test predicted with 95% accuracy which patients had high-grade, clinically significant prostate cancer that would require treatment. Some 35% of the patients could have avoided the recommended biopsies because they did not have clinically-significant cancer.

In reporting on another unpublished clinical validation study involving 3,448 men from Alberta and the United States, the team stated the test is three times more accurate than PSA at detecting clinically significant prostate cancer. They also noted implementation of the test "could eliminate up to 37% of unnecessary biopsies and significantly reduce the number of unnecessary treatments for prostate cancer."

The Lewis team is already at work on a predictive test for bladder cancer using the same technology and sees potential to develop diagnostic tools for other illnesses including cardiac disease, infectious diseases and neurodegenerative diseases.

More information: Adrian Fairey et al, Clinical analysis of EV-Fingerprint to predict grade group 3 and above prostate cancer and avoid prostate biopsy, *Cancer Medicine* (2023). DOI: 10.1002/cam4.6216

Provided by University of Alberta