

IMSTAR couples innovative technology developed at Bradford University with their fully-automated Pathfinder™ cell reader-analyzer to create ‘Universal’ blood test for earlier diagnosis of cancer

University of Bradford (UK) researchers behind a potential ‘universal’ liquid biopsy blood test for cancer detection have licensed the technology to IMSTAR to take it to market.

The research team believes that the test could be the first screening tool to ‘rule in, or rule out’ cancer in patients under suspicion of the disease, alongside other traditional diagnostics methods.

The test measures the damage to the DNA of white blood cells when subjected to different intensities of ultraviolet (UV) light, revealing measurable differences in the cells’ susceptibility to further damage in patients with cancer.

The damage forms a ‘comet tail’ of DNA pieces that are pulled towards the positive end of an electric field. The longer the comet tail, the more DNA damage is present, which correlates with the presence of cancer. In a 2014 proof of concept study, the Bradford researchers showed they could identify which samples were from patients with three different types of cancer – even those who had yet to be diagnosed – with 93 per cent success.

“We believe that the combination of Bradford’s innovation and IMSTAR’s unique expertise has shown that TumorScan can achieve these requisites.”

IMSTAR CEO
Françoise Soussaline,
PhD, DSc

IMSTAR Pathfinder™ system is able to analyze up to 10,000 potentially cancerous cells per 3 min and uses Artificial Intelligence models to separate individuals of a cancer group from the healthy control group with confirmed statistical significance. These findings are published on 15 October 2018 in *FASEB BioAdvances* journal. Professor Anderson said: “This test is different from other universal cancer tests being developed, because it is not looking for a specific biomarker or mutation. This is a generic test for cancer in an individual, regardless of the underlying mechanism that’s causing their cancer. I’m now convinced that if we used the powerful IMSTAR system to look at thousands of cells on all the slide samples in the trials, we would see a significant increase in the overall predictability beyond the original 93 per cent of the original 2014 study.”

Paris-based company IMSTAR has now coupled the innovative technology developed at Bradford with their fully-automated Pathfinder™ cell reader-analyzer to create a powerful and robust test for early detection, called TumorScan™.

Co-first author Dr Mojgan Najafzadeh from the University of Bradford said: “We feel that we’ve taken it as far as we can in proving that the test works with high predictability for cancer outcome, and IMSTAR are the right partners to improve it still further.”

Dr Françoise Soussaline, PhD, DSc, IMSTAR’s president said: “To bring a universal ‘liquid biopsy’ blood test for cancer to market, it must achieve a number of criteria, including high sensitivity and specificity and be fully automated with high throughput for a medical routine use. In addition, test results must be available in 24hrs and at affordable cost.

“We believe that the combination of Bradford’s innovation and IMSTAR’s unique expertise has shown that TumorScan can achieve these requisites.”

Ends

Notes to editors

The paper, ***Using a Modified Lymphocyte Genome Sensitivity (LGS) test or TumorScan test to detect cancer at an early stage in each individual*** is published in *FASEB BioAdvances*, a new Open Access journal from the Federation of American Societies for Experimental Biology (FASEB) and published by Wiley.

About Professor Diana Anderson

Prof Anderson has published over 450 papers; has served on the editorial board of 8 international journals plus 2 on line journals; has edited/authored 8 books and guest-edited 9 special issues of 4 international journals. She is currently Editor-in-Chief for the Book Series ‘Issues in Toxicology’ for the Royal Society of Chemistry. She is an active Committee member and former Vice-President of the Institute of Biology. She has successfully supervised 26 PhD, 2 MPhil and 2 MSc (Res) students and is currently supervising 5 other PhDs. Professor Anderson is a consultant for many international organizations, such as the WHO, NATO, TWAS, UNIDO and the OECD.

In 2016 Professor Anderson was nominated for a World Cultural Council ‘Albert Einstein award’ based on her entire research record.

<https://www.bradford.ac.uk/life-sciences/chemistry-and-biosciences/our-staff/prof-diana-anderson.php>

About the University of Bradford

Founded in 1966, the University of Bradford is one of the UK’s traditional universities. It is a research-intensive institution, ranked in the top 50 in the UK for the quality of its research, with three quarters being classed as either world-leading or internationally excellent in the 2014 Research Excellence Framework (REF).

About IMSTAR

IMSTAR Paris, France is a high-technology SME offering innovative complete solutions for fully automated high-throughput cellular assays analysis in the fields of genetic toxicity for bio-monitoring, digital cytopathology & cytogenetic, and drug discovery. Its team includes multidisciplinary expertise in biophysics, physics, applied mathematics, cell biology and cytopathology.

The company was founded in 1990 by Dr. Françoise Soussaline, as a spin-off of the Life Sciences Department of the French Atomic Energy Commission. In 1997, IMSTAR launched the first automated, quantitative and cost-effective Image Cytometer based on its proprietary Pathfinder™ Technology.

<http://www.imstarsa.com/>