

# Nottingham research leads to blood test for early detection of cancer

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The University of Nottingham spin-out company, Oncimmune Ltd, has developed a ground breaking blood test which will aid the detection of cancer as much as five years earlier than current testing methods such as mammography and CT scans. Physicians will know the result of their patient's test within one week of sending in a blood sample to Oncimmune.

Oncimmune has developed a new technique which replicates the cancer proteins that trigger the body's response to the disease and robotic technology to measure this response. This new technology (immuno-biomarkers) provides a significant advance in how early a cancer may be detected and is likely to change the current paradigm of diagnosis and treatment for most solid cancers such as lung, breast, ovarian, colon and prostate.

Based on the early work of John Robertson, a world renowned [breast cancer](#) specialist and Professor of Surgery in The University of Nottingham's Faculty of Medicine and Health Sciences, Oncimmune has successfully transferred this science into a reproducible commercial test. The test for lung cancer, EarlyCDT-Lung will be launched nationally in the USA this month followed by a launch in the UK early next year.

Geoffrey Hamilton-Fairley, Executive Chairman of Oncimmune, said: "We believe this test, along with the others we will launch in the next few years, will lead to a better prognosis for a significant number of cancer sufferers."

Initial research results were derived using blood samples from patients with breast cancer and a group of high risk women attending for annual [mammography](#) — which Professor Robertson had prospectively collected in Nottingham. All samples were obtained with fully informed consent as part of a study which had received approval from the appropriate ethics committee. In addition to

identifying the signal in the blood of a percentage of women when they developed breast cancer the results also showed that the signal could be detected in some of the high-risk patients who had given blood samples for a number of years during their annual check up and before they were subsequently diagnosed with cancer. When these samples were run retrospectively by Professor Robertson he showed that the prototype assay test could have detected over half of these cancers up to four years before they were actually diagnosed. The work on lung cancer followed through a European Union grant which involved both The University of Nottingham and Oncimmune in a collaboration with a number of European partners.

Professor John Robertson said "I am very pleased that the initial exciting research data that we produced in the laboratories at The University of Nottingham a number of years ago have been translated by Oncimmune to the first of many tests that will help us identify cancer early. The support of the University at all levels, including past and present Vice-Chancellors, Deans of the Faculty of Medicine and Heads of School along with the University's Management Board has been essential. Some of the initial research work was supported by charitable funds and donations from patient groups. In the commercialisation of the technology there have been a number of individuals who have continued to believe in and financially support the goal of developing a blood test for the early detection of cancer without whom this technology would not have reached this milestone. It has been a long and at times very hard road in creating a robust commercial test and those involved have worked with exceptional diligence and tenacity and have given their unremitting support to achieve this."

A study involving researchers at the Mayo Clinic in the USA recorded similar results using blood samples from a study of CT scans to screen for lung cancer where antibodies were detected up to

five years before the lung cancers were diagnosed. A number of other academic centres have reported similar results.

Oncimmune LTD was founded in 2003 to commercialise the technology developed in the laboratories of Professor Robertson. In 2006 the company set up a North American operation to validate and scale-up the test — trialling it on more than eight million assay "wells" from 80,000 patient samples.

The first early cancer detection test (EarlyCDT) to launch will be the test for lung cancer (EarlyCDT-Lung) which has the potential to detect the early stages of [lung cancer](#) possibly up to five years before a tumour appears. The target population for this test are high-risk individuals such as long-term smokers and ex-smokers between the ages of 40 and 75. Additionally the test would be appropriate for people who have been exposed to other risk factors associated with the disease, for instance, environmental exposures such as radon, asbestos and extensive exposure to secondary smoke.

Under the guidance of Professor Robertson, The University of Nottingham has become a world leader in the field of autoimmunity in cancer. Using the technology developed by Oncimmune there is, for the first time, a reliable platform available for testing the autoimmune response to cancer and further research will allow validation of the test in other tumour areas such as lung, colon and ovarian cancer.

To support this, the University is to establish a Centre of Excellence for Autoimmunity in Cancer (CEAC) with Professor Robertson as the Director of Research. The new centre will foster collaborative research to: speed up the delivery of an autoantibody blood test for different types of cancer for clinical use; encourage other research in the area of autoimmunity in cancer; and continue the search for support technologies that have the potential to enhance the medical prognosis following a positive test result.

Professor David Greenaway, Vice-Chancellor of The University of Nottingham said: "The establishment of CEAC will provide state-of-the-art

technologies to continue world leading research and development in the early detection of cancer using autoantibodies. The new centre will house a multi disciplinary research team working in partnership with international collaborators and Oncimmune. The research will provide additional test systems for the early diagnosis of a wide range of cancers which will have considerable impact within clinical medicine. The group's discovery science which has led to a novel set of biomarkers is providing new insights into the biology of cancer. Their basic, translational and clinical research is likely to contribute to a positive paradigm shift in our understanding of the early phases of cancer cell development as well as enhancement of the medical management of a wide range of cancer types."

Initially the test will be offered via primary care physicians and pulmonologists in the USA for high risk asymptomatic patients as well as patients who have indeterminate lung nodules. Oncimmune will bill private insurance companies as well as government-run Medicare Part B carriers on behalf of the patient.

Provided by University of Nottingham

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