

**THE
DIFFERENCE
CAMPAIGN**

UEA
University of East Anglia

THE TIGER TEST: DIAGNOSING AGGRESSIVE PROSTATE CANCER.

UEA scientists have developed a groundbreaking test to identify aggressive 'tiger' prostate cancers – help us bring it to market, so many more men can get the treatment they need, when they need it.

We are seeking philanthropic help to bring a ground-breaking diagnostic test to market.

THE PROBLEM

Prostate cancer is the most common cancer in men today – 500,000 cases are diagnosed every year across North America and Europe, and it is becoming an increasing problem in Asia and beyond. In the UK it has now overtaken breast cancer deaths, taking the lives of over 11,000 men each year. However, unlike other cancers, most prostate cancers are harmless. Studies suggest that perhaps 10% of men over 50 who are diagnosed will have a cancer that becomes life-threatening.

Until now, doctors have had no idea how to tell the difference between the harmless 90% and the aggressive 10% (sometimes known as ‘pussycat’ and ‘tiger’) cancers when they are first diagnosed. It means that many thousands of men are treated unnecessarily, increasing the risk of damaging side effects, including impotence from surgery. It’s also an inefficient use of specialist medical resources that could be better targeted at the patients who need them most.



OUR RESPONSE

Researchers at the University of East Anglia (UEA), led by Professor Colin Cooper, Chair of Cancer Genetics, have developed a Tiger Test to identify aggressive prostate cancers, by applying some complex maths known as Latent Process Decomposition. Through analysis of global prostate cancer datasets, we have discovered an aggressive form of prostate cancer, known as DESNT, that has the worst clinical outcomes for patients. We have now filed two patents for the discovery to ensure any subsequent clinical test can be made as widely available as possible.



PROSTATE CANCER RESEARCH AT UEA

World-class prostate cancer research was first established at UEA thanks to the lasting impact of the Andy Ripley Memorial Fund. The life-changing results of our research have been made possible thanks to the **continued generosity of our supporters**, including The Big-C, Norfolk’s cancer charity, the Masonic Charitable Foundation, the Bob Champion Cancer Trust, the King family and Prostate Cancer UK.

Our team is situated in the **Bob Champion Research & Education Building** on the Norwich Research Park, a world-leading cancer hub incorporating the Earlham Institute (genomics), the John Innes Centre (plants) and the Quadram Institute (food and gut health) and The Sainsbury Laboratory, some of which have active research programmes highly relevant to cancer treatment and drug development.

Our immediate proximity to, and close working relationship with, the **Norfolk and Norwich University Hospital** means Professor Cooper and his team can work more closely with both patients and clinicians to better treat individual cases and develop research strategies.

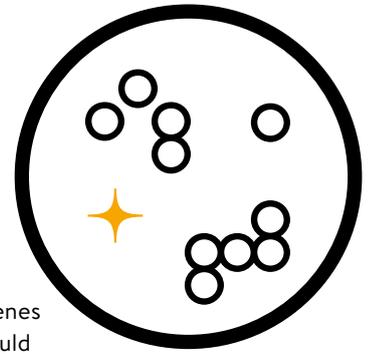
Norwich is the 4th most cited city for science research in the UK (Reuters) due to the concentration of biological research on the Norwich Research Park, which has a concentration of investigative medical microbiologists the envy of many larger cities in Europe. At UEA we wish to fully exploit the opportunities this ecosystem provides for enhanced clinical research, especially in the field of medical research.

The development of new tests that can be used to identify aggressive disease at the time of diagnosis will help doctors better tailor treatments to an individual’s cancer, reducing side effects and hopefully seeing more people survive their disease.

Mr Vincent Gnanapragasam
Surgeon and Consultant Urologist
at the University of Cambridge
and Addenbrookes Hospital



A TRACK RECORD OF IMPACT AND ACHIEVEMENT



2018

In April 2018, UEA researchers jointly led the world's largest study into genes that drive prostate cancer – identifying 80 molecular weaknesses that could now be targeted by drugs to treat the disease.

2015

In 2015, our teams discovered that in many men a 'normal' prostate is in fact highly abnormal, and has mutations just like cancer. This called into question focal therapy, where just part of the prostate is targeted for treatment.

Also in 2015, we discovered that advanced prostate cancer moves around the body like a pinball, from one site to another, in contrast to what had been believed for the previous 100 years.



Distinguishing between harmless and aggressive disease is the most important challenge in managing prostate cancer today. Our test can identify the 'tiger' cancers, so that treatment can be properly targeted. We urgently need to translate this work to a clinical setting, so that patients across Europe, the US and beyond can be routinely screened for aggressive prostate cancer. Focussing healthcare resources properly will ensure those needing it get the best treatment, inevitably saving lives.

Prof. Colin Cooper
Chair of Cancer Genetics, UEA

THE BIGGER PICTURE

The proposed development of the Tiger Test is one of three far-reaching strategic projects at UEA today, each tackling prostate cancer from a different angle. The other two are:

01

A major piece of research into the bacteria recently discovered by the UEA cancer research team in prostate cancer cells, to investigate whether they may have caused the cancer.

02

The development of a high-level, global prostate cancer consortium, called the Pan-Prostate Cancer Group (PPCG), encouraging collaboration between the big players in this space, including researchers in Australia, Canada, China, France, Germany and the USA.

OUR VISION

Our vision is for 250,000 men across North America and Europe to be tested for aggressive prostate cancer every year.

This will mean treatment can be targeted at those in most need, and spare tens of thousands of patients the damaging side effects of unnecessary radiotherapy and surgery, which often leaves men impotent. Our Tiger Test would also identify cancers missed by standard clinical tests, helping to save lives. To do this, we urgently need to translate our ground-breaking test into clinical practice.

The first step will be to create a new screening laboratory in the UEA Bob Champion Research and Education Building, incorporating a key piece of high-tech equipment known as an Affymetrix Microarray Scanner, which enables us to carry out the test.

WHAT IS NEEDED TO DEVELOP THE TIGER TEST?

In practical terms, to enable us to set up a screening laboratory, apply the test in a research setting, and work with private laboratories to develop a commercially-viable, widely-available test, we will roll out the project on three phases, described and costed below:

PHASE 1

Setting up a Screening Laboratory [£348,000]

Affymetrix Microarray Scanner: **£144,000**

Equipment service: **£64,000**

Technical support: **£140,000**

PHASE 2

Applying the test in a research setting and in clinical trials [£802,000]

Purchase of microarrays, sets of microscopic DNA sequences used for genetic testing: **£200,000**

Nurses to collect samples: **£80,000**

Support staff for processing patient samples: **£150,000**

Mathematician to develop the maths for clinical application: **£177,000**

Consumables for processing patient samples, including kits for sample analysis: **£100,000**

Training for MD or PhD student, to develop the next generation of cancer researchers: **£95,000**

PHASE 3

Creating a commercial test [£850,000]

Partner with specialist private laboratories and companies to create a commercial standard version of the test in a controlled environment

Engage with a commercial bio-pharma company to generate the Tiger Test in volume which can then be supplied to NHS clinicians and private doctors

Prove the clinical mathematics behind the test through a specialist commercial laboratory

Total up front commercialisation costs **£850,000**

NEXT STEPS

Prof Cooper and his team can achieve project completion, fully generating the commercial Tiger Test and getting it into the hands of clinicians for their patients, within 24 months.

The total project costs are £2m and with your help we will begin work in summer 2018 and deliver completion in 2020. We now urgently need the generous assistance of our friends and supporters; businesses, charities, foundations, individuals and alumni, to help us by donating to the Tiger Test Fund. To extend the impact of the project we will capture a small % fee from the value of future Tiger Test sales to invest directly into the next research project in Prof Cooper's laboratory following delivery of the Tiger Test, providing an opportunity to extend the research and the impact of your donation.

Being like everyone else is easy, but UEA's motto is to 'Do Different' and this means challenging accepted conventions, even in medical science. By being faithful to our motto we have already made important, significant and distinctive contributions to prostate cancer research. But being different comes at a cost. We now ask you to help make the difference at UEA to the future diagnosis and treatment of prostate cancer by supporting the Tiger Test Fund.

UEA has a charitable-exempt status (XN423) in the United Kingdom, and charitable status in the United States of America and the Royal Kingdom of the Netherlands, meaning that tax-efficient donations are possible from tax payers and corporations in these countries.

To discuss making a donation to the Tiger Test Fund please contact the UEA Development Office at giving@uea.ac.uk or call 01603 592945. Cheques made payable to "University of East Anglia" can be sent to Director of Development, Development Office, University of East Anglia, Norwich Research Park, Norwich, NR4 7TJ. Online donations can be made at www.uea.ac.uk/alumni/difference/health/prostate-cancer