



International Cancer Genome Consortium

For immediate release

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PROJECTS LAUNCHED TO CRACK THE CANCER CODE

CANCER RESEARCH UK today launched two pioneering projects to identify the key genetic faults that are driving oesophageal and prostate cancers, which will transform our understanding of the diseases and pave the way to better and more targeted treatments.

Part of the International Cancer Genome Consortium (ICGC)*, the projects will scan all the genes in 500 oesophageal and 500 prostate cancers, looking for each genetic mistake. Armed with this 'blueprint for cancer' the researchers will be able to pick out and target the genes that are causing cancer with new treatments.

The projects will be supported by two new fundraising initiatives. The prostate cancer arm will be supported by the fundraising efforts of the Dallaglio Foundation which is raising £2.5 million for the project, while the oesophageal ICGC project is one of the initiatives being supported by Cancer Research UK's new Catalyst Club, which is raising £4.5m.

Over 17,000 people die each year from the two diseases in the UK, but very little is known about how they develop and why patients respond differently to treatment.

In the UK, The Institute of Cancer Research (ICR) and The Royal Marsden NHS Foundation Trust will lead the prostate cancer ICGC project, while the University of Cambridge will lead the oesophageal cancer ICGC project.

Dr Rebecca Fitzgerald, who will lead the Cancer Research UK oesophageal cancer ICGC project in Cambridge, said: "The number of people diagnosed with oesophageal cancer is increasing rapidly in the UK, and only eight per cent of patients will survive at least five years. We urgently need to know more about the underlying causes of the disease and what determines whether a patient will respond to a treatment."

At its core cancer is a disease caused by damaged DNA, and over time these faults make cells grow out of control and cause cancer. But it's these same faults that researchers can use to learn about its weaknesses to find those that can be exploited with new treatments.

Dr Fitzgerald added: "Armed with the knowledge of which genes are driving the disease we will be able to group patients based on their genetic makeup and determine those who will benefit most from certain treatments, helping to save more lives."

The DNA from each of the samples will be sequenced – like reading and collecting all the letters in a book. These are then compared to find the mistakes that are commonly found in cancers providing researchers with knowledge of the faults that are 'driving' the cancer.

These could then be targeted with new personalised medicines tailored to the patient's genetic makeup.

This ambitious project is now possible thanks to the latest advances in technology made available through an exclusive agreement with Illumina. Today's genetic sequencing machines are up to a million times faster than those used for the Human Genome Project ten years ago, enabling the scientists involved in ICGC to decode entire cancer genomes quickly and relatively cheaply.

Professor Ros Eeles from the Institute of Cancer Research and The Royal Marsden, who co-leads the prostate cancer ICGC study with Professor Colin Cooper from the ICR and Professors David Neal and Douglas Easton from The University of Cambridge, said: "One of the major challenges in treating prostate cancer is determining who needs aggressive treatment – some are slow growing and will never need treatment whilst others will develop quickly.

"By knowing the genetic differences we may be able to identify which men are at higher risk, so we can target treatment to those patients and potentially save thousands from unnecessary therapy. The second challenge is that the more aggressive prostate cancers can become resistant to our current treatments. Knowing the genetic make-up of such prostate cancers will help us take a targeted approach to developing new treatments for these cancers that would otherwise kill the patient."

Harpal Kumar, Cancer Research UK's chief executive, said: "We're delighted to be playing a leading role in the biggest cancer research collaboration in the world. More than 40,000 people every year in the UK are diagnosed with prostate and oesophageal cancers and the incidence of both is increasing. But this is an incredibly exciting time in understanding the link between different genes and cancer. Armed with knowledge of which mistakes in genes are driving which cancers, doctors and scientists will be able to maximise the chances of cure for each patient by picking the best treatments and by developing new and more targeted treatments for people with oesophageal and prostate cancers in the future.

"Thanks to the generosity and support of our donors we're able to carry out this life-saving work which we hope will ultimately increase survival from cancer."

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For media enquiries please contact Simon Shears in the Cancer Research UK press office on 020 3469 8054 or, out-of-hours, the duty press officer on 07050 264 059.

Notes to editors

* The project is part of the International Cancer Genome Consortium, Projects that are currently funded are examining tumours affecting the bladder, blood, bone, brain, breast, cervix, colon, head and neck, kidney, liver, lung, oral cavity, ovary, pancreas, prostate, rectum, skin, soft tissues, stomach and uterus. Over time, additional nations and organizations are anticipated to join the ICGC. Ultimately, over 25,000 tumour genomes will be sequenced worldwide. <http://www.icgc.org/>

The Institute of Cancer Research (ICR)

- The ICR is Europe's leading cancer research centre
- The ICR has been ranked the UK's top academic research centre, based on the results of the Higher Education Funding Council's Research Assessment Exercise
- The ICR works closely with partner The Royal Marsden NHS Foundation Trust to ensure patients immediately benefit from new research. Together the two organisations form the largest comprehensive cancer centre in Europe
- The ICR has charitable status and relies on voluntary income, spending 90 pence in every pound of total income directly on research
- As a college of the University of London, the ICR also provides postgraduate higher education of international distinction
- Over its 100-year history, the ICR's achievements include identifying the potential link between smoking and lung cancer which was subsequently confirmed, discovering that DNA damage is the basic cause of cancer and isolating more cancer-related genes than any other organisation in the world
- Professor Colin Cooper is the Grand Charity of Freemasons Professor of Molecular Biology. Professor Ros Eeles is Professor in Oncogenetics at the ICR and an Honorary Consultant in Clinical Oncology and Cancer Genetics at The Royal Marsden

For more information visit www.icr.ac.uk

The Royal Marsden opened its doors in 1851 as the world's first hospital dedicated to cancer diagnosis, treatment, research and education.

Today, together with its academic partner, The Institute of Cancer Research (ICR), it is the largest and most comprehensive cancer centre in Europe treating over 44,000 patients every year. It is a centre of excellence with an international reputation for groundbreaking research and pioneering the very latest in cancer treatments and technologies. The Royal Marsden also provides community services in the London boroughs of Sutton and Merton and in June 2010, along with the ICR, the Trust launched a new academic partnership with Mount Vernon Cancer Centre in Middlesex.

Since 2004, the hospital's charity, The Royal Marsden Cancer Charity, has helped raise over £50 million to build theatres, diagnostic centres, and drug development units.

Prince William became President of The Royal Marsden in 2007, following a long royal connection with the hospital.

For more information, visit www.royalmarsden.nhs.uk

University of Cambridge:

The University of Cambridge's mission is to contribute to society through the pursuit of education, learning and research at the highest international levels of excellence. It admits

the very best and brightest students, regardless of background, and offers one of the UK's most generous bursary schemes.

The University of Cambridge's reputation for excellence is known internationally and reflects the scholastic achievements of its academics and students, as well as the world-class original research carried out by its staff. Some of the most significant scientific breakthroughs occurred at the University, including the splitting of the atom, invention of the jet engine and the discoveries of stem cells, plate tectonics, pulsars and the structure of DNA. From Isaac Newton to Stephen Hawking, the University has nurtured some of history's greatest minds and has produced more Nobel Prize winners than any other UK institution with over 80 laureates.

About Cancer Research UK

- Cancer Research UK is the world's leading cancer charity dedicated to saving lives through research
- The charity's groundbreaking work into the prevention, diagnosis and treatment of cancer has helped save millions of lives. This work is funded entirely by the public.
- Cancer Research UK has been at the heart of the progress that has already seen survival rates double in the last forty years.
- Cancer Research UK supports research into all aspects of cancer through the work of over 4,000 scientists, doctors and nurses.
- Together with its partners and supporters, Cancer Research UK's vision is to beat cancer.

For further information about Cancer Research UK's work or to find out how to support the charity, please call 020 7121 6699 or visit www.cancerresearchuk.org