

BEATING CANCER WITH CRUK

Tim Hudson, Research Engagement Manager

Friday 2 October, 2019



CANCER
RESEARCH
UK

Together we will beat cancer



Image credit: LRI EM

WHAT WE'LL COVER

- Introduction to CRUK
- What do we do?
- How do we fund research?
- Our research
- Our strategy
- Our achievements
- Cancer Grand Challenges

INTRODUCTION TO CANCER RESEARCH UK

A group of five people are seen from behind, huddled together in a supportive embrace. They are wearing white t-shirts with the Cancer Research UK logo, which consists of a stylized 'C' made of colorful dots. The background is a soft-focus outdoor setting with trees and sunlight filtering through. A large, semi-transparent purple circle is overlaid on the center of the image, containing the text.

We're the world's
largest charity
dedicated to saving
lives through
research



Our vision is to
bring forward the
day when all
cancers are cured



Cancer Research UK
formed from the
merger of two
cancer organisations
in 2002



Now, we are the
largest
charitable
funder of cancer
research in the
world

A photograph of a patient lying on a CT scanner table, positioned inside the gantry. The patient is wearing a patterned shirt and glasses. Two large, semi-transparent circular overlays are present: a purple one on the left and a blue one on the right, both containing white text. The background shows the white and grey components of the medical equipment.

Cancer is not a
single disease,
there are over 200
different types

Over 360,000
people are
diagnosed each
year in the UK



1 in 2

people born after 1960 in
the UK will be diagnosed
with cancer in their
lifetime

But cancer survival
is improving and has
doubled in the last
40 years



Last year we spent
£546 million
on research

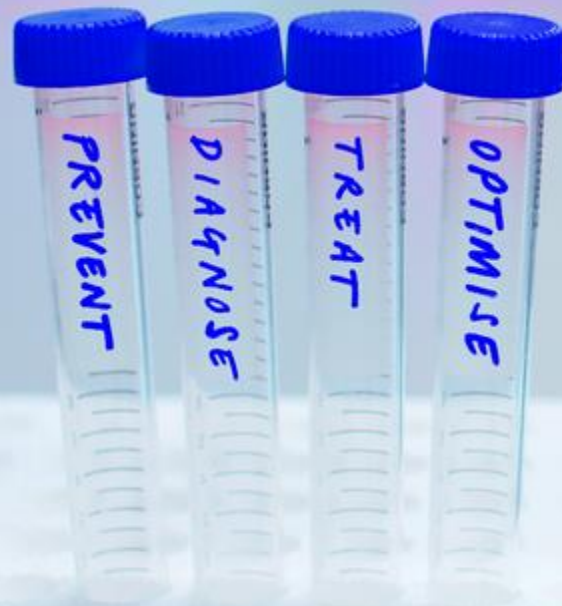
9 out of 10
donations are
under £10





Together
we will
beat cancer

WHAT DO WE DO?



WE'RE TACKLING CANCER
ON ALL FRONTS

We focus on
areas with the
greatest potential
to beat cancer

OUR STRATEGY

OUR CORE
EXPERTISE
SPANS



STRATEGIC
PRIORITIES
INCLUDE **CANCERS**
OF UNMET NEED



LUNG



OESOPHAGEAL



PANCREATIC



BRAIN

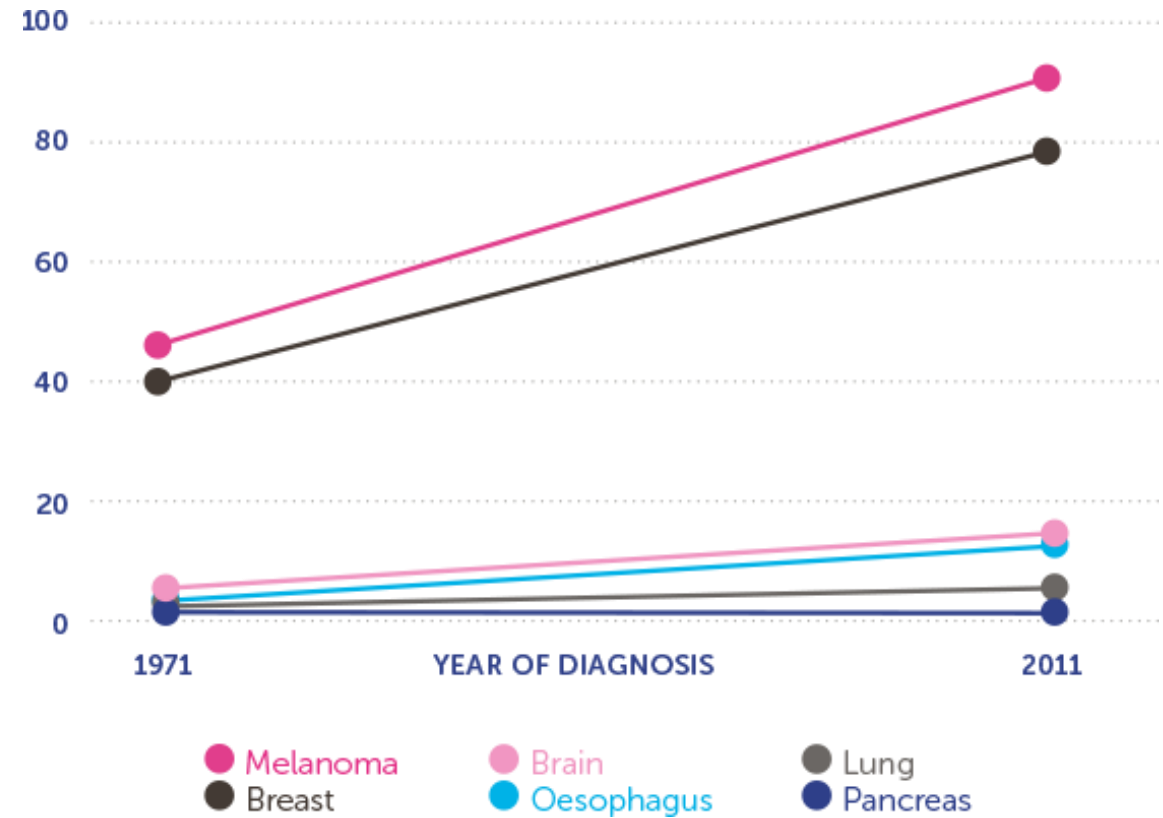
UNMET NEED

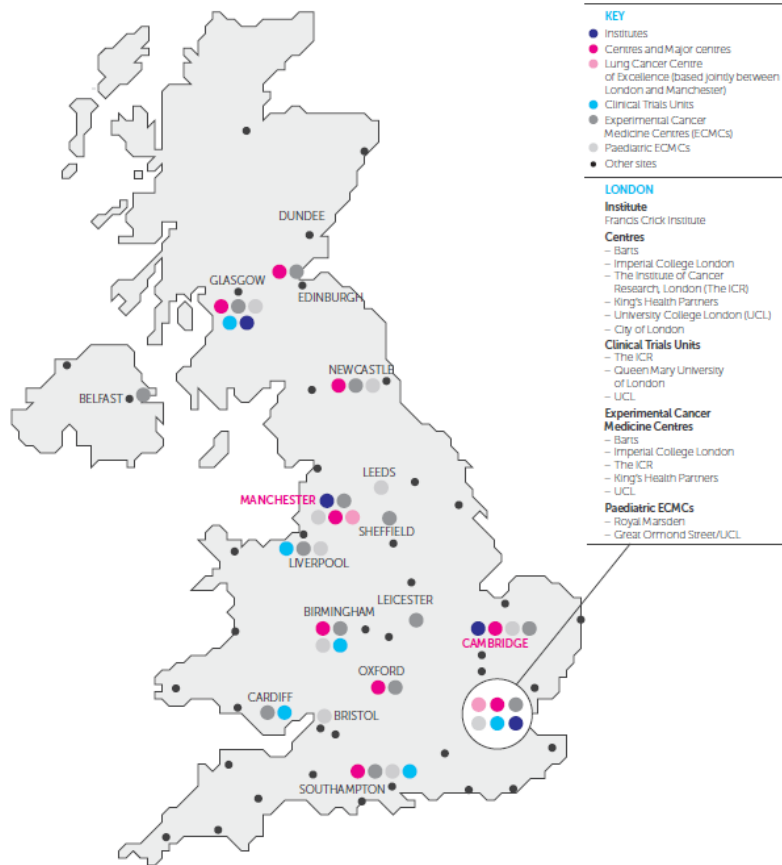
TACKLING HARD-TO-TREAT CANCERS

CANCERS OF
UNMET NEED



10 YEAR NET INCREASE SURVIVAL (%)






OUR WORLD-CLASS RESEARCH NETWORK



We fund over
4,000 scientists,
doctors and
nurses

A photograph of a modern, multi-story building at night. The building has a glass facade and is illuminated from within, with lights visible through the windows. A large, semi-transparent pink circle is overlaid on the left side of the image, containing white text. In the background, another building is visible, and a person is walking on a paved area in the foreground.

Our institutes ensure
that our researchers
have everything they
need to help beat
cancer in one building



An aerial photograph of the Francis Crick Institute under construction. The image is split vertically: the left side shows the completed building with its distinctive curved, metallic roof, while the right side shows the steel framework of a new section. A large, semi-transparent blue circle is centered over the image, containing white text. The background is a dense urban landscape.

We worked with
5 other world-leading
research organisations
to build the Francis
Crick Institute



THE
FRANCIS
CRICK
INSTITUTE


Over
1,600
outstanding
scientists



CANCER
RESEARCH
UK

A photograph of two scientists, a man and a woman, in a laboratory setting. They are both wearing white lab coats. The man, on the left, has glasses and is looking down at a document. The woman, on the right, is also looking at the document and has a slight smile. They are holding a large sheet of paper with text on it. In the background, there are shelves with various lab equipment and containers. A large purple circle is overlaid on the left side of the image, containing white text.

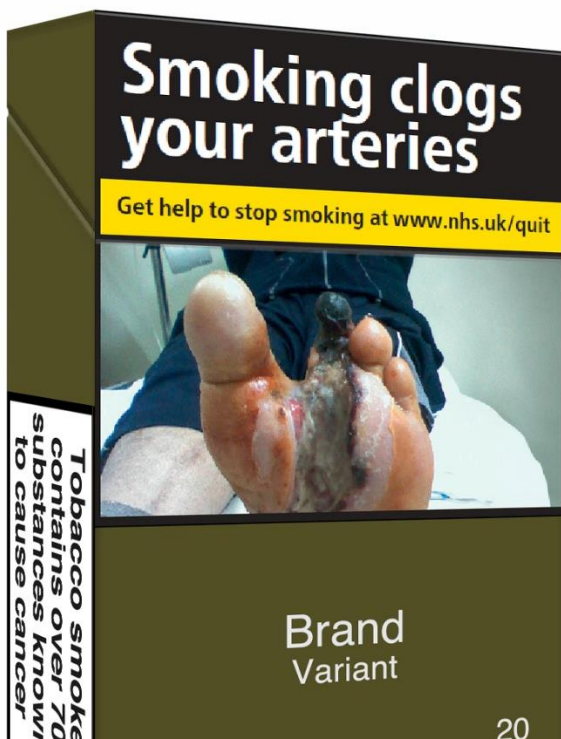
At our 15 research centres, we work closely with universities, NHS trusts, government, industry and other charities



And our 18
Experimental Cancer
Medicine Centres
(ECMCs) help to bring
new treatments to
the clinic



Our nurses provide support and information about cancer online and over the phone



We keep cancer high on the political agenda



HOW DO WE FUND RESEARCH?

How do we decide what research to fund?



1. Our scientific executive board set aside money for each major area of research



2. Researchers apply for funding



3. Expert funding committees decide which projects to fund

What do our funding committees look for?



Backed up by
evidence?



Will it benefit
patients?



Is it ethical?



Good research
team?



Is it achievable?



Is it new?

OUR RESEARCH STRATEGY

OUR RESEARCH STRATEGY

Prevent

Find out what causes cancer and ways to prevent it

Diagnose

Develop ways to detect cancer at an early stage

Treat

Design and test new cancer treatments

Optimise

Improve existing cancer treatments

PREVENT



CANCER
RESEARCH
UK

Together we will beat cancer





ENGLISH BREAKFASTS

GETTING OLD

CANDLES

Prevent

Finding out what causes cancer and developing ways to prevent it



Around
4 in 10
cases of cancer
in the UK could
be prevented

Smoking is the largest cause of
cancer in the UK, accounting for

15%

of all cancer cases.



Prevent

Reducing people's risk of developing cancer

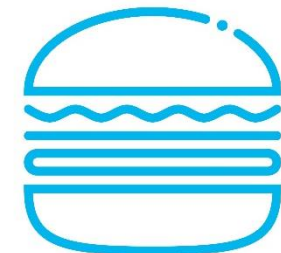
Personalised
approaches to
prevention and
screening



Prevention
research



Health
awareness
campaigns



PREVENT

Reducing people's risk of developing cancer

Cervical cancer interventions



Dr Jo Waller
University College London



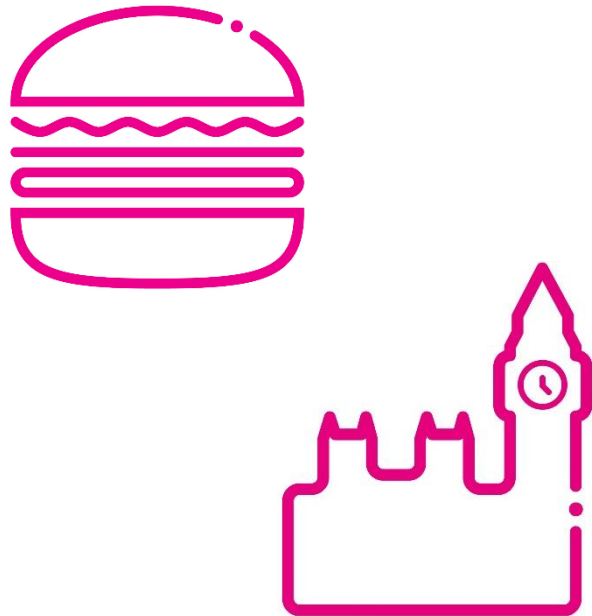
Dr Jo Waller is investigating why some people don't participate in cervical cancer interventions (such as HPV vaccination); and how to encourage participation in these initiatives.

Prevent

Watershed for junk food ads

Reducing people's risk of developing cancer

We're calling for a ban on TV and online adverts for food high in fat, sugar and salt before 9pm will help protect children from exposure to marketing for junk food.



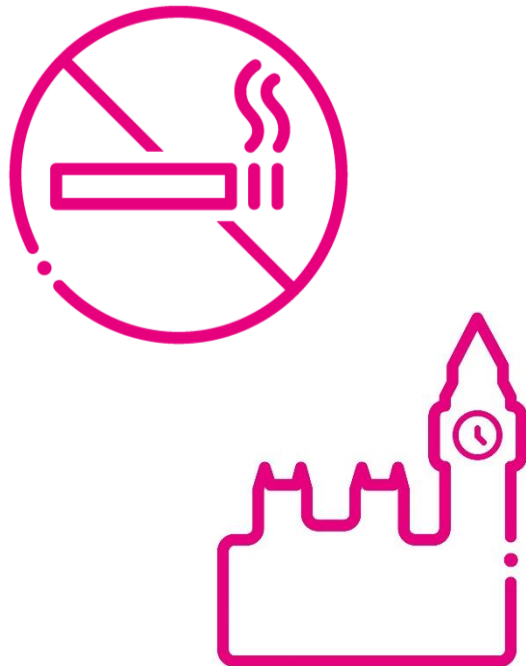
Obesity is the
second biggest
cause of cancer
in the UK.

Prevent

Reducing people's risk of developing cancer

Smokefree by 2030

Cuts to public health budgets mean vital stop smoking services are under threat.



We're calling on the UK Government to provide increased and sustainable public health funding.

We're calling for the English and Welsh Governments to adopt a **smokefree by 2030** target.

WHAT IS A TOBACCO LEVY?



The Government can pass a law



To force tobacco companies to pay £500 million out of their profits to the Government



This is equivalent to 1 penny per cigarette they sell in the UK

Which will help the 2/3 of smokers who want to kick the habit for good



The Government will then give this money to fund Stop Smoking Services and advertising campaigns



CANCER RESEARCH UK

LET'S BEAT CANCER **SOONER**
Take action right now at cruk.org/big-tobacco-cough-up

DIAGNOSE



CANCER
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UK

Together we will beat cancer



Diagnose

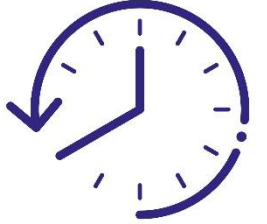
Developing ways to detect cancer earlier, when it's more likely to be treated successfully



When diagnosed at the earliest stage (stage 1), more than

9 in 10

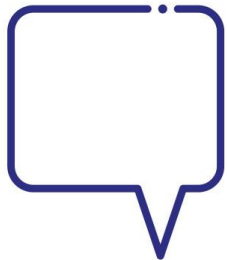
people with bowel cancer will survive their disease for five years or more



Diagnose

Developing ways to detect cancer earlier, when it's more likely to be treated successfully

Campaign to fill
vacant NHS
diagnostic posts



Help to diagnose
more people at an
earlier stage



Develop more
effective
screening tests



Diagnose

Developing ways to detect cancer earlier, when treatment is more likely to be successful

Thinking outside the box to detect bowel cancer earlier

Combined new approaches with existing screening tests to identify people at risk of bowel cancer



Professor Chris Probert is looking for clues in the gases released from stool samples to develop a simple, non-invasive bowel cancer test



Professor Chris Probert
University of Liverpool

DIAGNOSIS

DIAGNOSING CANCERS AT AN
EARLIER STAGE

NATIONAL CANCER SCREENING PROGRAMMES

3

THE UK HAS
3 SCREENING PROGRAMMES



1

It's estimated that **Breast Screening** reduces the number of deaths from breast cancer by about 1,300 a year in the UK

2

Cervical Screening is one of the most effective cancer prevention measures ever implemented, and cervical cancer death rates have decreased by 72% in the UK since the late 1970s.

3

Bowel Screening saves lives. It aims to prevent and detect cancer at an early stage when treatment is more likely to work.

DIAGNOSIS

DIAGNOSING CANCERS AT AN
EARLIER STAGE

DIAGNOSE BOWEL
CANCER EARLIER
THROUGH SCREENING



**MORE THAN
9 IN 10**
BOWEL CANCER PATIENTS WILL SURVIVE
THEIR DISEASE
FOR 5 YEARS OR MORE IF DIAGNOSED AT THE
EARLIEST STAGE,
COMPARED TO
1 IN 10
WHEN DIAGNOSED AT THE LATEST STAGE

BOWEL
SCREENING IS
THE BEST WAY TO
DIAGNOSE
BOWEL CANCER
EARLY

**THIS LITTLE KIT
SAVES LIVES FROM
BOWEL CANCER**



**IT'S
EASIER
THAN YOU
THINK**

The test can detect invisible early signs of bowel cancer.
Cancer Research UK recommends that you do it.
Aged 60-74? Every two years you will receive this free NHS test in the post.

Call 0808 800 40 40 to speak to a nurse
cruk.org/bowelscreening

 **CANCER
RESEARCH
UK**

DIAGNOSIS

DIAGNOSING CANCERS AT AN
EARLIER STAGE

BEST3 TRIAL:
DIAGNOSING BARRETT'S
OESOPHAGUS – A RISK
FACTOR FOR
OESOPHAGEAL CANCER



THE TEAM HAVE DEVELOPED A TEST
CALLED THE 'CYTOSPONGE' – A
NIFTY, SPONGE-ON-A-STRING CELL
COLLECTION DEVICE

BY MAKING
BARRETT'S OESOPHAGUS
EASIER TO DIAGNOSE,
DOCTORS CAN
INTERVENE AT AN EARLY
STAGE, BEFORE IT
DEVELOPS INTO
OESOPHAGEAL CANCER



Professor Rebecca Fitzgerald
University of Cambridge

SEE HOW THE
CYTOSPONGE
WORKS

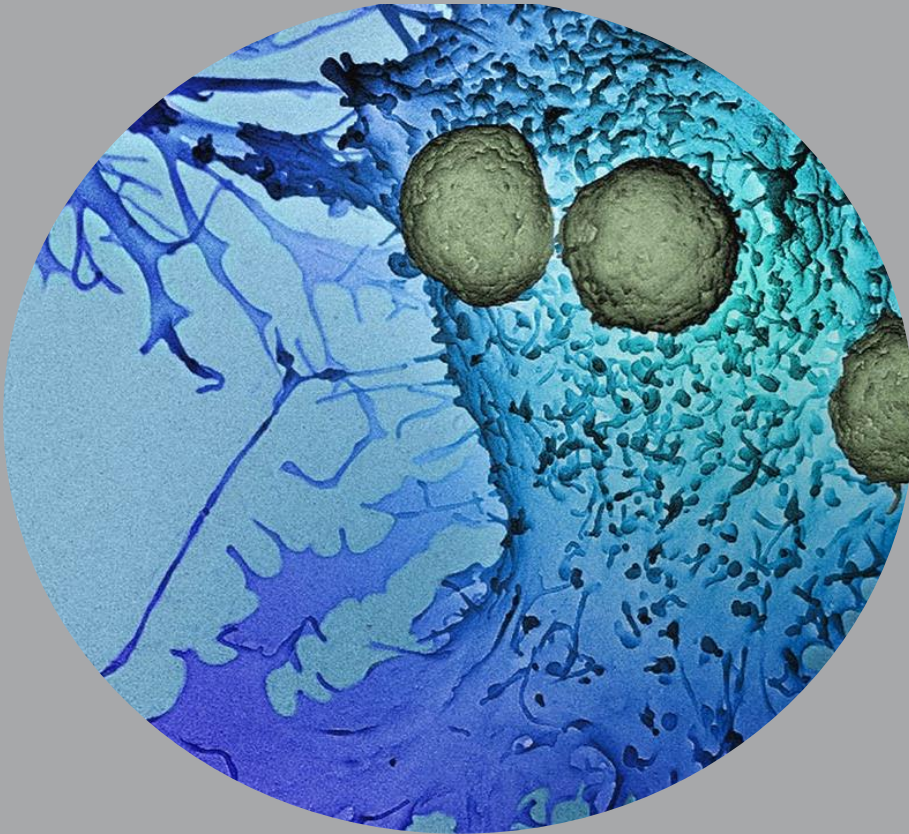


TREAT



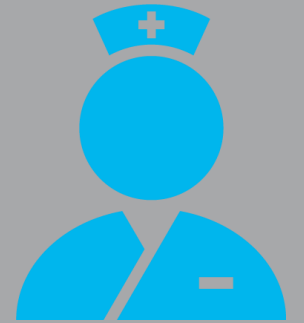
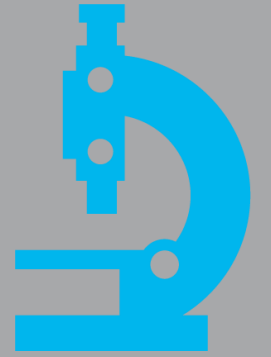
TREAT

DEVELOPING AND TESTING NEW CANCER
TREATMENTS



NEW AVENUES
OF RESEARCH
COULD SAVE
MORE LIVES

DELIVERING
**MORE EFFECTIVE NEW
TREATMENTS**
WILL REQUIRE NEW
PERSPECTIVES, MECHANISMS &
METHODS



TREAT

DEVELOPING & TESTING NEW CANCER TREATMENTS

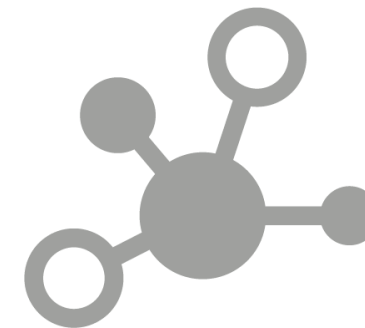
DEVELOPING
AND
TESTING NEW
CANCER
TREATMENTS



LEAD
INNOVATION IN
RADIOTHERAPY
AND SURGERY



DISCOVER
AND
DEVELOP
NEW
THERAPEUTICS



FOCUS ON
TARGETING
COMMONLY
MUTATED CANCER
GENES



CURRENT
TREATMENTS
AVAILABLE



TREAT

DEVELOPING & TESTING NEW CANCER TREATMENTS



TARGETED THERAPIES home in on specific genetic weaknesses of certain cancer cells



CHEMOTHERAPY AND RADIOTHERAPY stop cancer cells from growing and dividing



IMMUNOTHERAPY turns the immune system against cancer

RADIOTHERAPY & SURGERY



TREAT

DEVELOPING & TESTING NEW CANCER TREATMENTS

OF ALL CANCER
PATIENTS, ALMOST

3 IN 10

WILL HAVE
RADIOTHERAPY
AS A PRIMARY TREATMENT



RECENT ADVANCE:
STEREOTACTIC ABLATIVE
RADIOTHERAPY

OF ALL CANCER
PATIENTS, ALMOST

5 IN 10

WILL HAVE
SURGICAL INTERVENTION
AS A PRIMARY TREATMENT

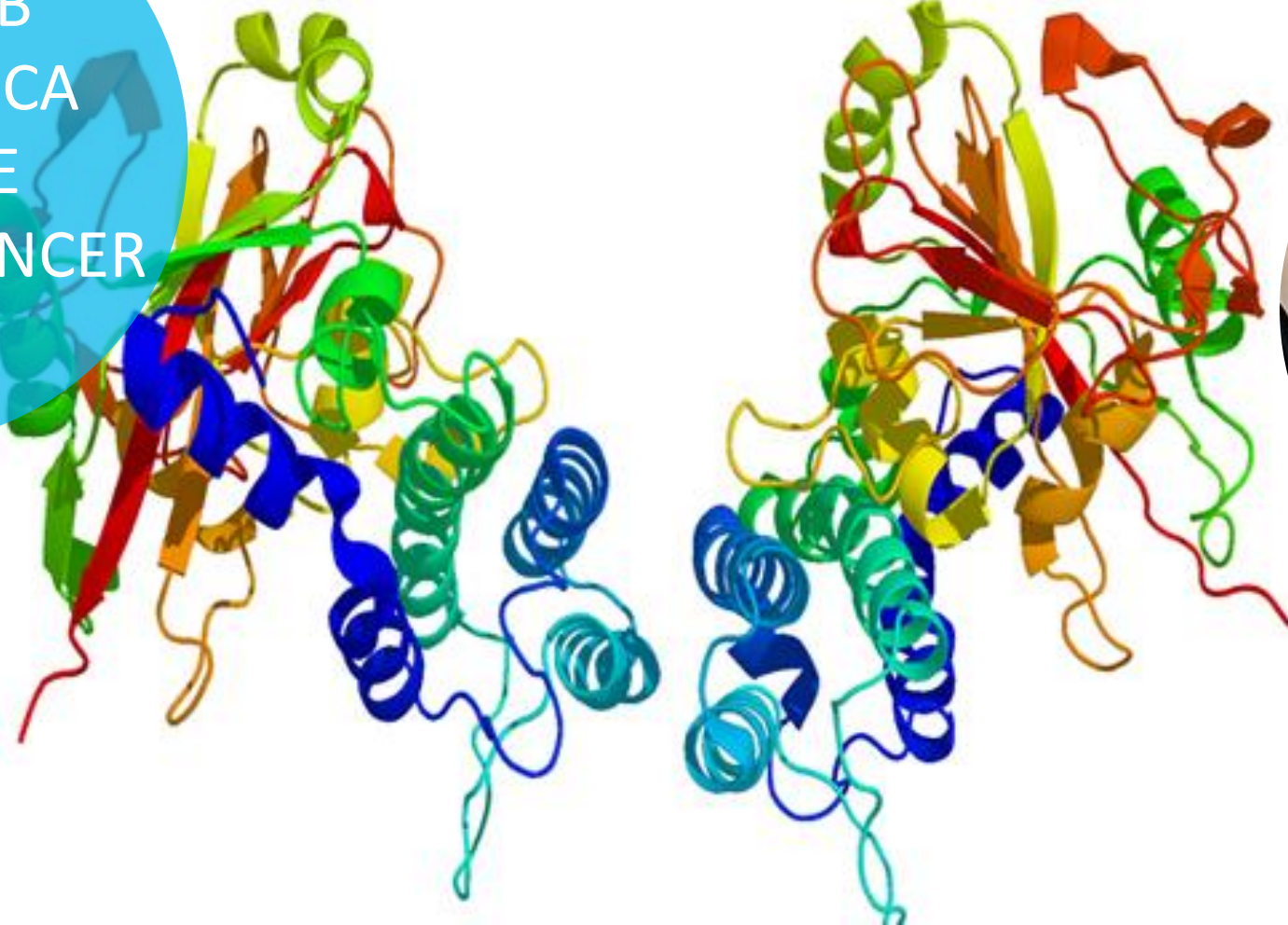


THE FUTURE: LESS INVASIVE
APPROACHES AND THE USE
OF ADVANCED IMAGING

NEW THERAPEUTICS

“I am optimistic that research will help turn cancer into more of a manageable disease”

OLAPARIB
TREATS BRCA
POSITIVE
OVARIAN CANCER



Professor Ruth Plummer
Newcastle University

NATIONAL LUNG MATRIX TRIAL



TREAT

DEVELOPING & TESTING NEW CANCER TREATMENTS

The world's largest ever clinical trial for non small cell lung cancer is matching treatments to patients based on genetic changes in their cancer

**THE STUDY IS
PAVING THE WAY
FOR MORE
EFFICIENT AND
EFFECTIVE CLINICAL
TRIALS**



OPTIMISE



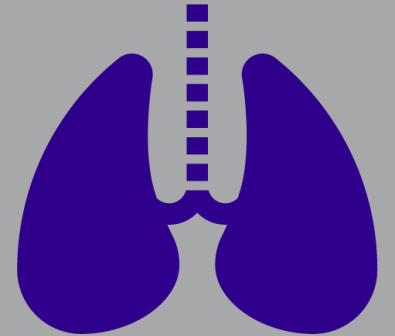
OPTIMISE TREATMENTS

IMPROVING EXISTING CANCER TREATMENTS



WE NEED TO
MAKE EXISTING
CANCER
TREATMENTS
MORE EFFECTIVE

WE NEED TO
HARNESS OUR UNDERSTANDING
OF HOW EVERY PATIENT AND THEIR CANCER IS
DIFFERENT TO
IDENTIFY THOSE MOST LIKELY TO BENEFIT
FROM TREATMENTS



OPTIMISE TREATMENTS

IMPROVING EXISTING CANCER
TREATMENTS



IMPROVING
EXISTING
CANCER
TREATMENTS

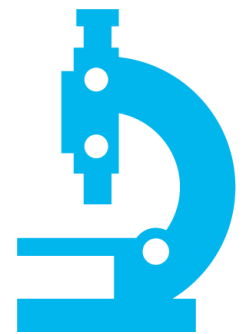
TAILOR
TREATMENTS TO
THE INDIVIDUAL



ADVANCE
OUR
UNDERSTANDING OF
TUMOUR
EVOLUTION



DEVELOP
NEW
COMBINATION
TREATMENTS



PERSONALISED MEDICINE

TAILORING TREATMENTS TO THE INDIVIDUAL



“PERSONALISED
MEDICINE IS THE MOST EXCITING
CHANGE IN CANCER TREATMENT
SINCE THE INVENTION OF
CHEMOTHERAPY”

PROFESSOR PETER JOHNSON,
CHIEF CLINICIAN,
CANCER RESEARCH UK

CANCER VARIES BETWEEN
DIFFERENT PEOPLE. AND
EVEN IN AN INDIVIDUAL
PATIENT, THE CANCER CAN
CHANGE OVER TIME.

PERSONLISED MEDICINE
MATCHES PATIENTS TO
TREATMENTS BASED ON
THE BIOLOGY OF THEIR
CANCER

JUST AS EACH
FINGERPRINTS IS
DIFFERENT – SO IS EACH
PERSON’S CANCER



PRECISION -Panc

PERSONALISED MEDICINE

TAILORING TREATMENTS TO
THE INDIVIDUAL

It is predicted that 5 in every 100 people with pancreatic cancer can expect to survive their disease for more than 10 years in England and Wales

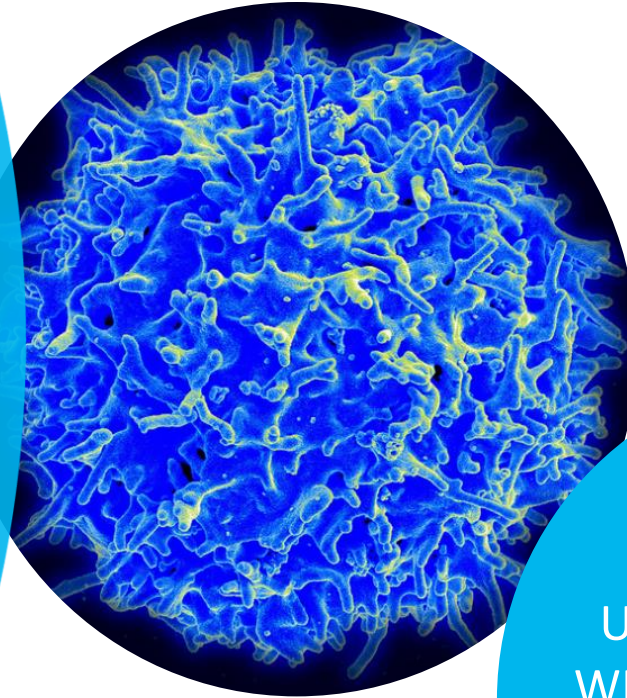


Professor Andrew Biankin
University of Glasgow, Beatson Institute

Tracking Cancer Evolution through Therapy

TUMOUR EVOLUTION: TRACERx

ANALYSING HOW
LUNG CANCER
CHANGES OVER
TIME



CRUK'S SINGLE
LARGEST
INVESTMENT IN
LUNG CANCER
RESEARCH



Professor Charles Swanton
Francis Crick Institute

ADDING TO OUR
UNDERSTANDING OF
WHY PEOPLE RESPOND
DIFFERENTLY TO
TREATMENTS

STAMPEDE: testing new combination treatments



Finding the right treatment
combination for men with
prostate cancer



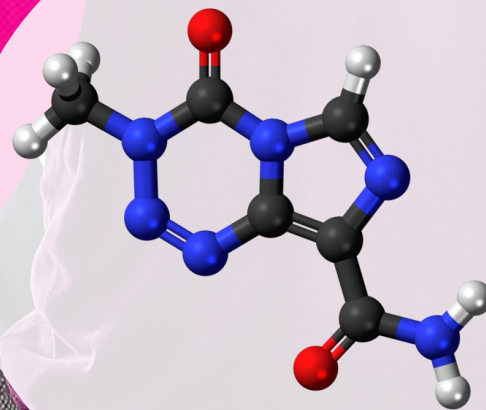
Professor Nick James
Institute of Cancer Research, London



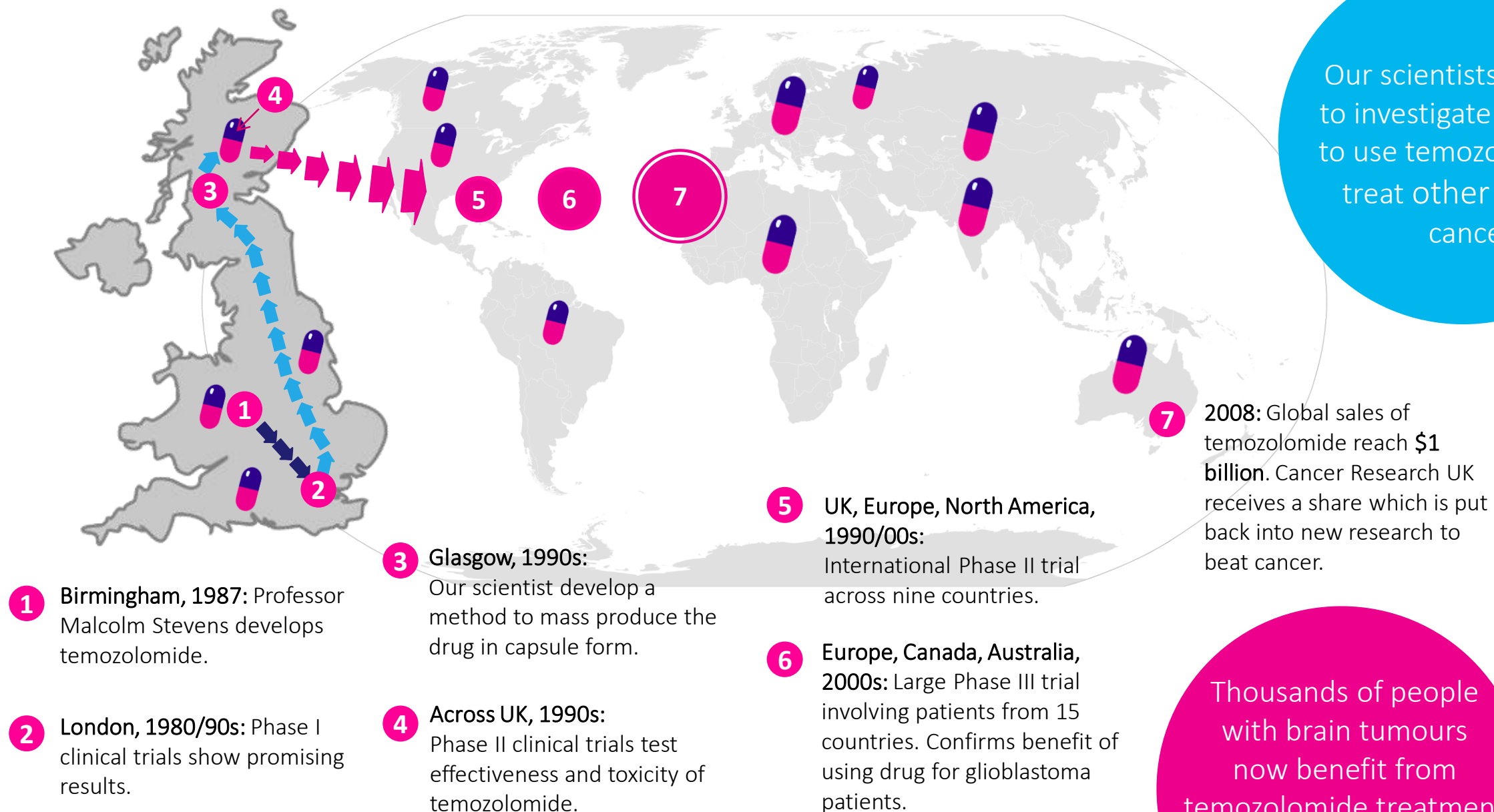
OUR ACHIEVEMENTS

Our scientists across
the UK worked
together to develop
temozolomide.

It's now used to treat
brain tumours
worldwide



Temozolomide: a global success story



Our scientists continue to investigate new ways to use temozolomide to treat other types of cancer

Thousands of people with brain tumours now benefit from temozolomide treatment

And our
researchers have
contributed to
most of the top
cancer drugs

Aromasin

Gemzar

Femara

Avastin

Tamoxifen

Erbitux

Cisplatin

Carboplatin

Herceptin

Olaparib

Oxaliplatin

Tarceva

Gefitinib

Temozolomide

Zoladex

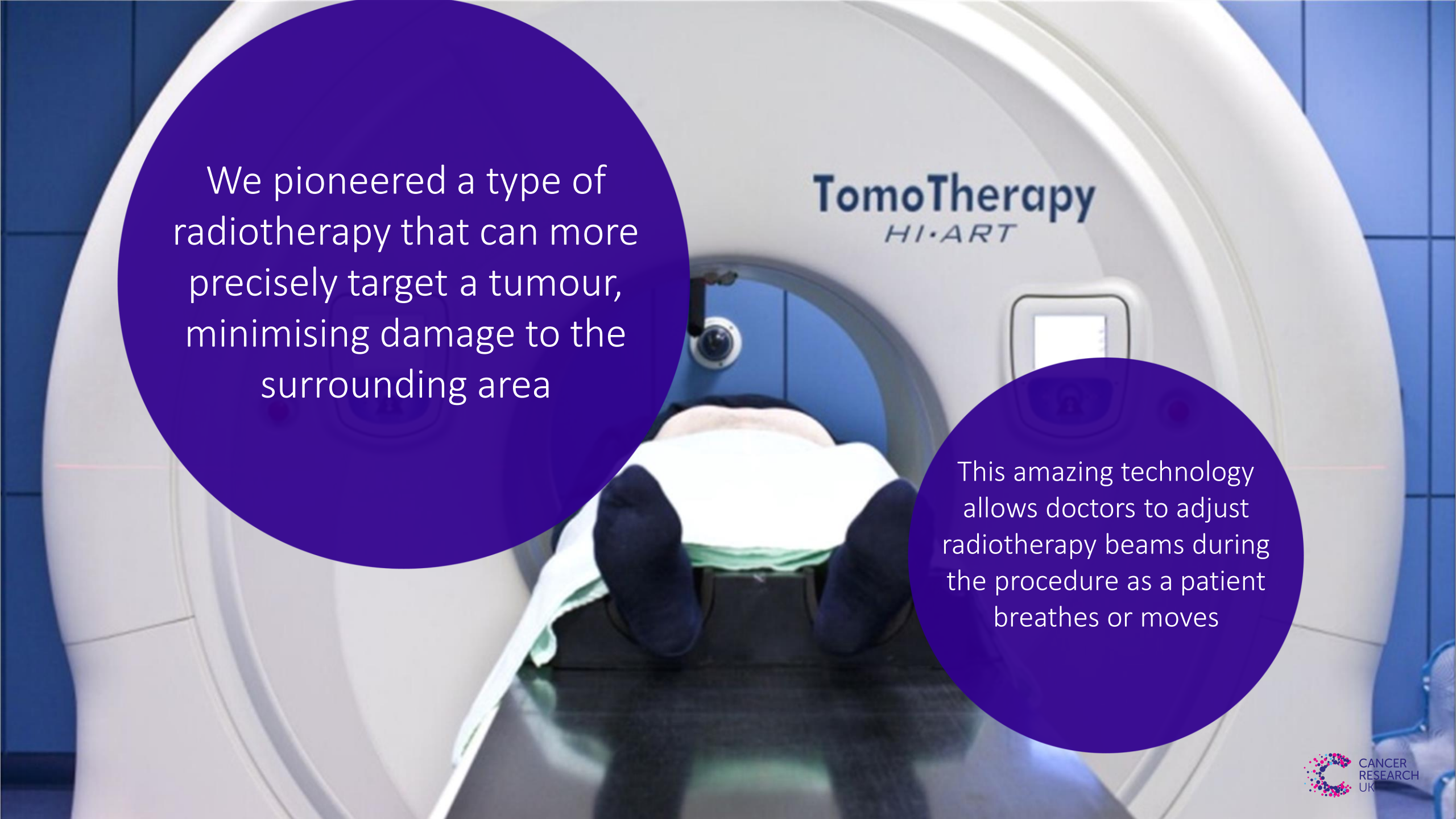
Anastrozole

Taxotere

A photograph of a woman with blonde hair and two young children, a girl and a boy, smiling and looking at each other outdoors. The woman is in the center, wearing a black top. The girl is on the right, wearing a pink and white striped shirt. The boy is on the left, wearing a pink shirt. The background is a blurred green field with some yellow flowers.

We currently
support over 150
active clinical
trials.

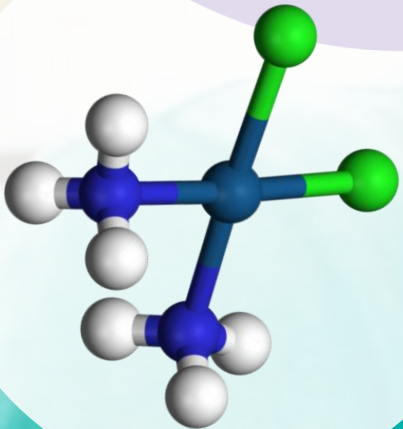
On average, over
8,000 patients are
recruited to our
treatment trials
each year

A patient is lying on a table inside a large, white, circular radiation therapy machine. The machine has the text "TomoTherapy HI-ART" on its side. The patient is wearing a white shirt and dark trousers. The machine's interior is blue. Two large purple circles are overlaid on the image, containing text.

We pioneered a type of radiotherapy that can more precisely target a tumour, minimising damage to the surrounding area

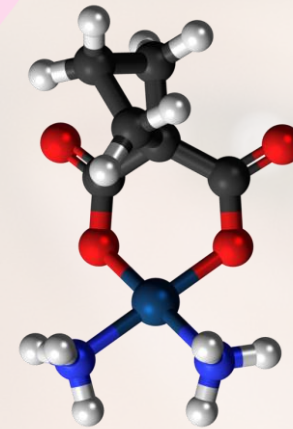
This amazing technology allows doctors to adjust radiotherapy beams during the procedure as a patient breathes or moves

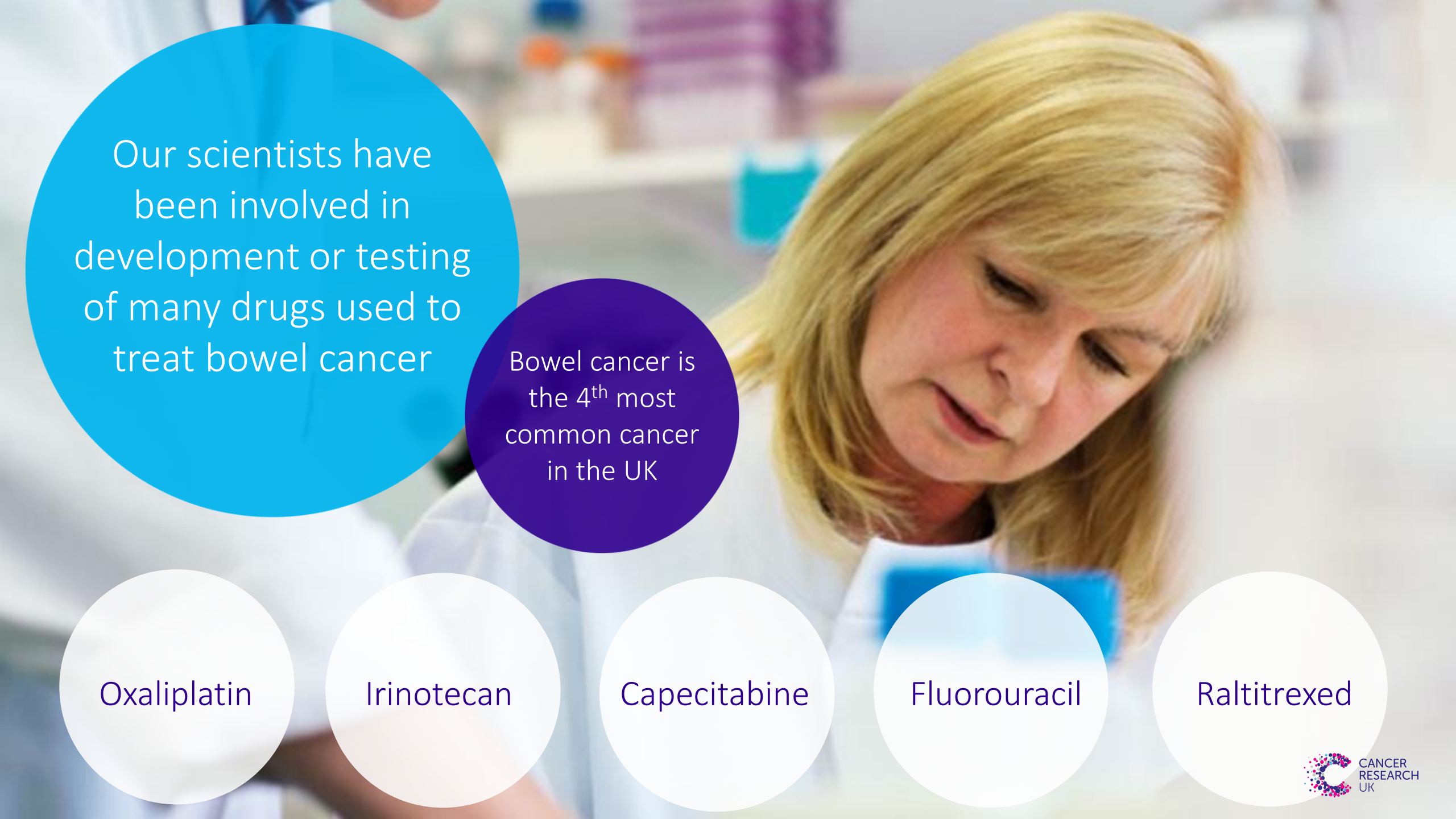
We helped to
develop cisplatin
– a drug that
transformed the
treatment of
testicular cancer



'It is predicted that
around **9 in 10** of men
diagnosed with testicular
cancer in England survive
their disease for **10 or
more years**

Our scientists discovered
carboplatin, a kinder
version of cisplatin and
one of the most
successful cancer drugs
ever developed



A woman with blonde hair, wearing a white lab coat, is looking down at a petri dish in a laboratory setting. The background is blurred, showing other lab equipment and shelves.

Our scientists have
been involved in
development or testing
of many drugs used to
treat bowel cancer

Bowel cancer is
the 4th most
common cancer
in the UK

Oxaliplatin

Irinotecan

Capecitabine

Fluorouracil

Raltitrexed

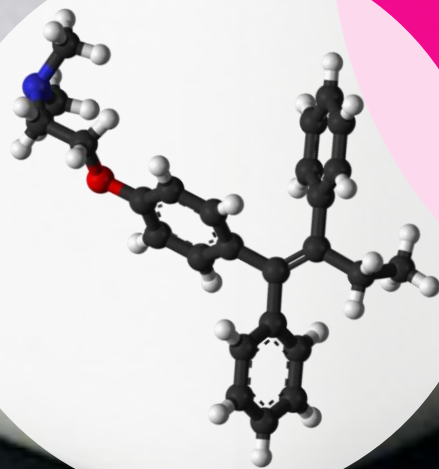



No other research organisation has done more to improve the lives of women with breast cancer in the UK

Our research helped us to discover more about HRT and its links with cancer, through the Million Women Study

It is predicted that around 3 in 4 women in England survive their breast cancer for 10 years or more'

Our scientists helped
to find out how
tamoxifen could
benefit women with
breast cancer



A photograph of a man and a young girl smiling outdoors. The man is in the center, wearing a light blue shirt, and the girl is to his right, wearing a white shirt with red polka dots. They are both looking towards the camera. The background is a blurred brick wall and greenery.


We were involved in the development and testing of some of the drugs that have had the biggest impact on lung cancer

Cisplatin

Carboplatin


Pemetrexed

Etoposide



Our scientists
discovered EBV,
the first human
virus that can
cause cancer

paving the way for the
development of
vaccines against cancer,
such as the HPV vaccine
for cervical cancer

A young girl with dark hair tied back is smiling and being hugged from behind by a woman with dark curly hair. Both are smiling warmly at the camera. The background is a soft-focus outdoor scene with green grass and a blue sky.

In the 1970s
more than a third of
children with cancer
survived their disease...
now, it's around three
quarters

The CRUK children's
cancer trials team in
Birmingham coordinates
groundbreaking trials
across the UK

A photograph of a patient lying in a hospital bed, wearing a white gown. An IV drip is attached to their arm, secured with a white bandage. A nurse's hand, wearing a white glove, is adjusting the IV drip. The patient's hand, adorned with a ring, is visible near the IV. A blue plastic container is on the bed next to the patient. Two semi-transparent circular overlays are present: a large blue one on the left and a smaller white one on the right, both containing text.

We played a key
role in setting up
the International
Rare Cancers
Initiative

We've joined forces with
research groups around
the world to boost the
number of clinical trials
for rare cancers

Cancer Grand Challenges

Overview

September 2020

CANCER GRAND
CHALLENGES



CANCER
RESEARCH
UK



NATIONAL
CANCER
INSTITUTE

TRANSFORMING GLOBAL CANCER RESEARCH

- Cancer Grand Challenges (CGC) is a global funding platform created to solve the toughest problems in cancer research. Co-founded through a partnership between Cancer Research UK and the National Cancer Institute that launched in 2020
- CGC is challenge-led problem solving on a scale beyond traditional funding routes – challenges are set from the ground-up through consultation with the research and advocacy community
- Whole process overseen by eminent scientific committee with input from our advocacy panel

THE FUNDING OPPORTUNITY:



- £20 (\$25) million awards + £30,000 (\$40,000) seed funding for shortlisted teams to build their proposal



- 2 staged-application process: expression of interest followed by full application for shortlisted teams.



- International teams - including collaborators from commercial entities can apply



- Encouraging multidisciplinary approaches - researchers from all disciplines can apply

NEW CHALLENGES
REVEALED AND OPENING
FOR EXPRESSIONS OF
INTEREST:
14 October 2020

PREVIOUS CHALLENGES

7 CHALLENGES SET IN ROUND 1



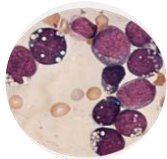
PREVENTION VACCINES

Develop vaccines to prevent non-viral cancers



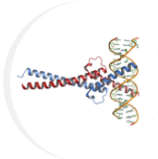
LETHAL VS NON-LETHAL

Distinguish between lethal cancers which need treating, and non-lethal cancers that don't



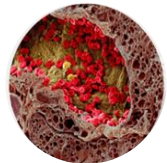
EBV CANCERS

Eradicate EBV-induced cancers from the world



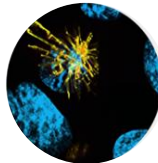
TARGETING MYC

Develop innovative approaches to target the cancer super-controller MYC



3D TUMOUR MAPPING

Map the molecular & cellular tumour microenvironment in order to define new targets for therapy and prognosis



BIOLOGICAL MARCOMOLECULES

Deliver biologically active macromolecules to any & all cells in the body



UNUSUAL PATTERN MUTATIONS

Discover how unusual patterns of mutation are induced by different cancer-causing events

8 CHALLENGES SET IN ROUND 2



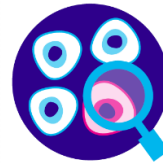
TREATMENT REGIMENS

Define mechanistic rules for combinatorial treatments to overcome resistance and avoid toxicity



CANCER CAUSES

Determine the mechanisms that "cause" cancer without known mutagenesis, such as obesity, in order to devise novel interventions



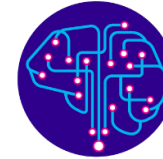
LETHAL VS NON-LETHAL

Distinguish between lethal cancers which need treating, and non-lethal cancers that don't



TUMOUR VACCINOLOGY

Create novel tumour vaccinology approaches that establish or enhance successful immune responses beyond what is revealed by current checkpoint therapy



ARTIFICIAL INTELLIGENCE

Detect cancer earlier by interrogating medical and non-medical data sets using machine and deep-learning



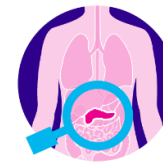
MICROBIOTA

Improve treatment responses by manipulating the composition and status of the microbiota



DORMANCY

Identify and target tumour cells that remain dormant for many years after seemingly effective treatment



TISSUE SPECIFICITY

Devise approaches to prevent or treat cancer based on mechanisms that determine tissue specificity of some cancer genes

SCIENTIFIC PORTFOLIO



TEAM ROSETTA - £16/ 5 YR

GB



- STUDYING TUMOUR METABOLISM FROM EVERY ANGLE
- Led by Josephine BUNCH, 10 investigators & 2 patient advocates



TEAM SPECIFICANCER - £20/ 5 YR

NL GB US



- MAP OF CANCER DRIVERS & THEIR SPECIFICITY TO DIFFERENT TISSUES
- Led by Steve ELLEDGE, 10 investigators & 3 patient advocates



TEAM MUTOGRAPHS - £20/ 5 YR

GB US FR



- IDENTIFYING PREVENTABLE CAUSES OF CANCER
- Led by Mike STRATTON, 6 investigators & 2 patient advocates



TEAM STORMING - £20/ 5 YR

CA GB US



- DEVELOP NEW OPTIONS TO TREAT AND PREVENT INFLAMMATION INDUCED CANCER
- Led by Thea Tlsty, 10 investigators & 5 patient advocates



TEAM IMAXT - £20/ 6 YR

GB US CA CH IE



- CREATING VIRTUAL REALITY MAPS OF TUMOURS
- Led by Greg HANNON, 14 investigators & 2 patient advocates

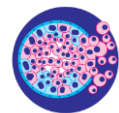


OPTIMISTICC - £20/ 5 YR

GB US CA NL ES



- INVESTIGATE THE MICROBIOME'S IMPACT ON TREATMENT IN COLORECTAL CANCER
- Led by Matt MEYERSON & Wendy GARRETT, 13 investigators & 8 patient advocate



TEAM PRECISION - £15/ 5 YR

NL GB US



- PREVENTING UNNECESSARY BREAST CANCER TREATMENT
- Led by Jelle WESSELING, 13 investigators & 5 patient advocates



CANCER GRAND
CHALLENGES



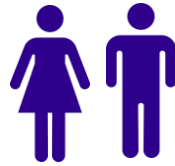


ROSETTA TEAM

STUDYING TUMOUR METABOLISM FROM EVERY ANGLE



PROF. JOSEPHINE BUNCH
NPL, United Kingdom



10 investigators
2 patient advocates



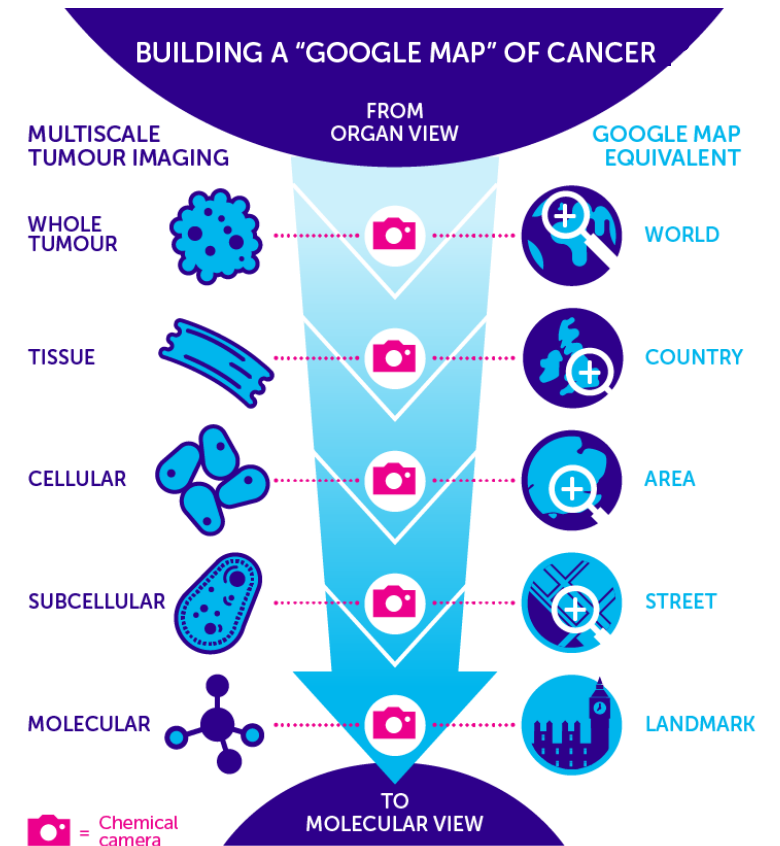
UK



Breast, bowel,
pancreatic & brain



£16m





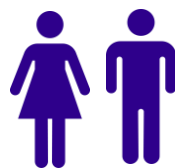
MUTOGRAPHS TEAM

IDENTIFYING PREVENTABLE CAUSES OF CANCER



PROF. SIR MIKE STRATTON

Wellcome Trust Sanger Institute,
United Kingdom



6 investigators
2 patient advocates



France
UK
USA



Bladder, bowel,
kidney, liver, lung,
oesophageal
& pancreatic



£20m



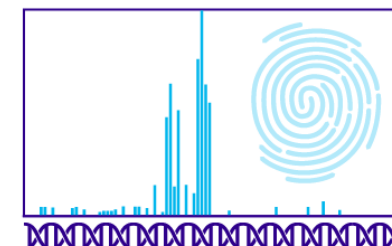
Cancer causing chemicals leave identifiable scars (like fingerprints) on damaged DNA

SOME OF THOSE FINGERPRINTS HAVE BEEN IDENTIFIED

✓ TOBACCO

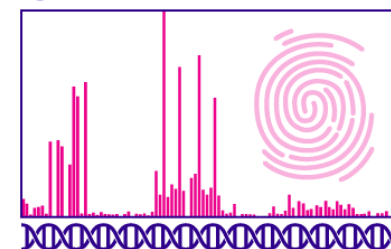


✓ SUNLIGHT (UV)



BUT OVER 50% OF RECOGNISED FINGERPRINTS ARE UNKNOWN

? UNKNOWN CULPRIT



By studying global variations of different cancers this project will attempt to identify unknown fingerprints and further understand the mechanism causing cancer



CANCER GRAND
CHALLENGES



CANCER
RESEARCH
UK



NATIONAL
CANCER
INSTITUTE

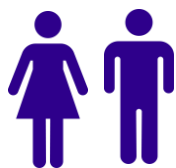


IMAXT TEAM

CREATING VIRTUAL REALITY TUMOUR MAPS



PROF. GREG HANNON
CRUK Cambridge Institute,
United Kingdom



14 investigators
2 patient advocates



Canada
Republic of Ireland
Switzerland
UK
USA



Breast



£20m

1 A detailed reference picture of a cancer tumour is taken.



2 Wafer thin slices are cut from the tumour.



3 The slices are deeply analysed, right down to their genetic information.



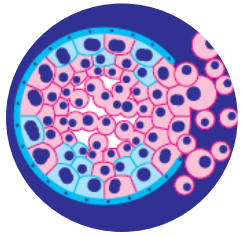
4 The gathered information is processed and the tumour is rebuilt in virtual reality.



5

Multiple users wearing 3D virtual reality headsets can step into the tumour, view and analyse it simultaneously.



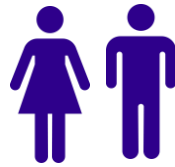


PRECISION TEAM

PREVENTING UNNECESSARY BREAST CANCER TREATMENT



PROF. JELLE WESSELING
NKI, The Netherlands



13 investigators
5 patient advocates



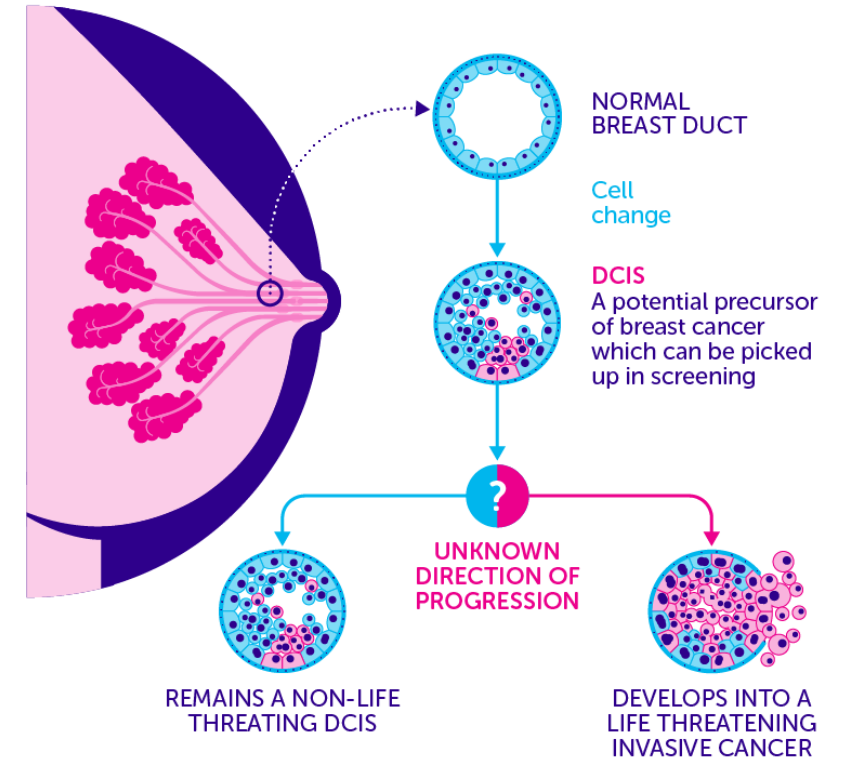
The Netherlands
UK
USA



Breast



£15m



This project aims to understand which **DCIS** will develop into **life threatening cancer** and which will not. This could ultimately save some women from unnecessary cancer treatment.



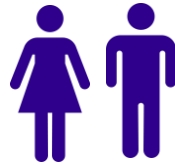
SPECIFICANCER TEAM

GENERATE A COMPREHENSIVE MAP OF CANCER DRIVERS AND THEIR SPECIFICITY TO DIFFERENT TISSUES



PROF. STEVE ELLEDGE

Brigham and Women's Hospital,
Harvard Medical School, USA



10 investigators
3 patient advocates



The Netherlands
UK
USA



Bowel, pancreatic,
breast, lung, skin,
kidney & brain



£19m



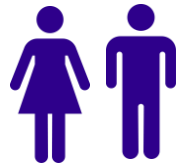


STORMING CANCER TEAM

DEVELOP NEW OPTIONS TO TREAT AND PREVENT INFLAMMATION INDUCED CANCER
IN HIGH-RISK PATIENTS



PROF. THEA TLSTY
UCSF, USA



10 investigators
5 patient advocates



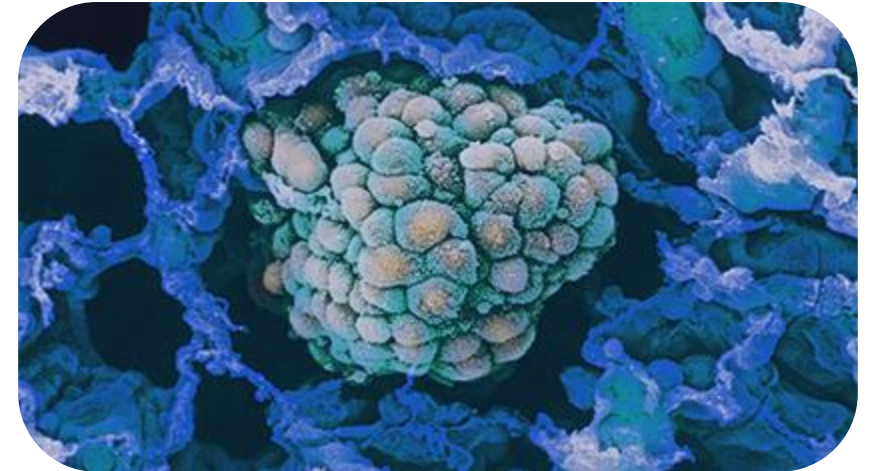
Canada
Israel
UK
USA



Bowel,
oesophageal,
stomach & lung



£20m





OPTIMISTICCC TEAM

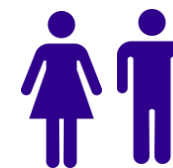
OPPORTUNITY TO INVESTIGATE THE MICROBIOME'S IMPACT ON AND TREATMENT OF COLORECTAL CANCER



PROF. WENDY GARRETT
Harvard T.H. Chan School of
Public Health, USA



PROF. MATTHEW MEYERSON
Dana-Farber Cancer Institute,
USA



13 investigators
8 patient advocates



Canada
Spain
The Netherlands
UK
USA



Bowel



£20m



THANK YOU

Tim Hudson,
Research Engagement Manager
tim.hudson@cancer.org.uk
[@CRUKresearch](https://twitter.com/CRUKresearch)

