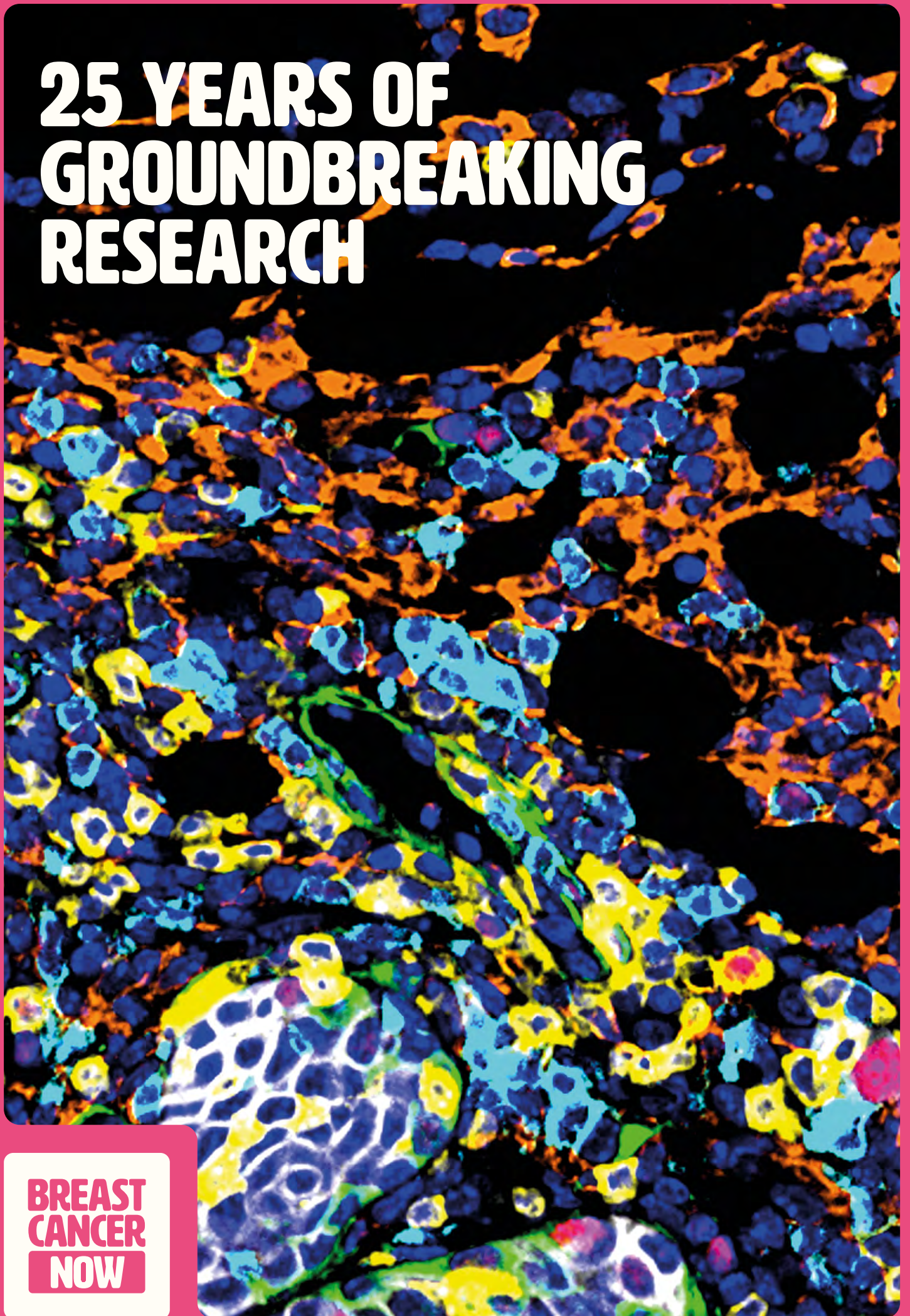


25 YEARS OF GROUNDBREAKING RESEARCH

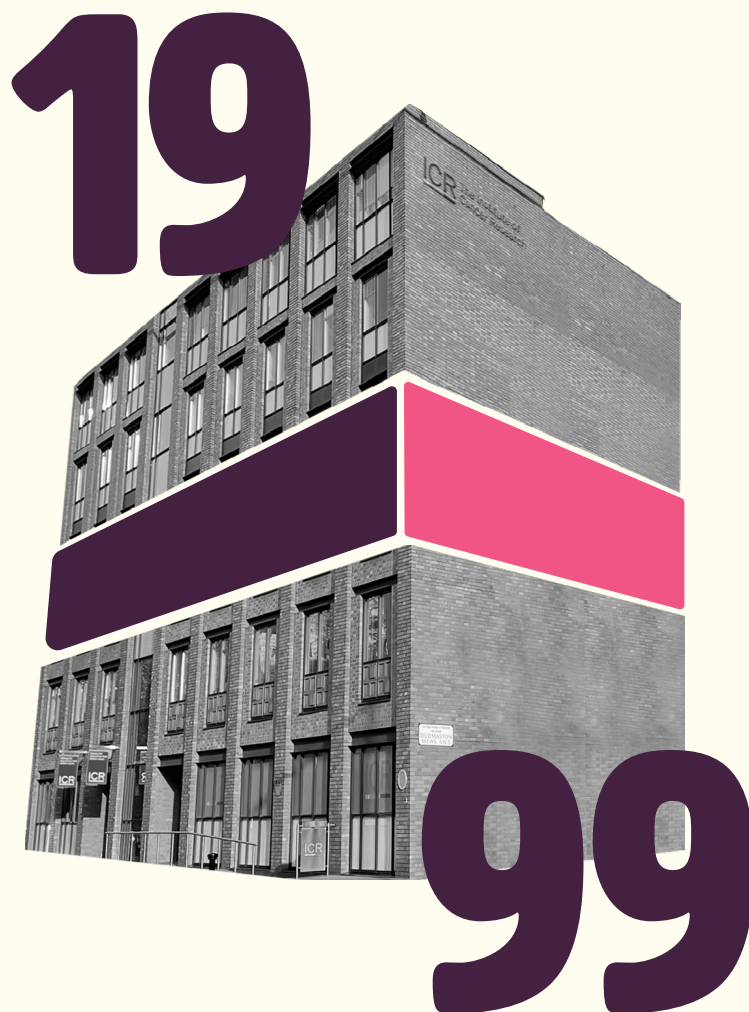


**BREAST
CANCER
NOW**

25 YEARS /

OF GROUNDBREAKING RESEARCH

OUR IMPACT	3
A REVOLUTIONARY NEW TREATMENT	5
A LEGACY OF HOPE	7
TACKLING THE BIGGEST QUESTIONS IN BREAST CANCER	8
THE PEOPLE BEHIND THE SCIENCE	9
25 MORE YEARS OF GROUNDBREAKING DISCOVERIES	10



The front cover image was provided by The Breast Cancer Now Research Centre at The Institute of Cancer Research, London

OUR IMPACT

For the past 25 years, researchers at the Breast Cancer Now Toby Robins Research Centre at the Institute of Cancer Research (ICR), London, have been dedicated to making life-changing breakthroughs in breast cancer treatment and prevention. Each one taking us closer to our vision that by 2050, everyone diagnosed with breast cancer will live, and be supported to live well.

The UK's first dedicated breast cancer research centre is home to over 100 scientists – all working towards a single goal. **And they've been behind some of the biggest discoveries in breast cancer research.**

A CENTRE LIKE NO OTHER

When actress Toby Robins died from breast cancer in 1986, her husband Bill Freedman wanted to honour her legacy. He and his family worked on the idea of a dedicated breast cancer research centre with Professor Barry Gusterson, who became its founding director. Their vision was a centre of excellence for breast cancer research, with experts working under one roof on a coordinated programme of research.

A few years later, Peter Green made a transformational donation to support the building of the centre in memory of his wife, Mary-Jean Mitchell Green. And this was a start of something extraordinary. The fashion and beauty industries, the music business, numerous celebrities and people who have been affected by the disease all coming together to make our research centre a reality.

Our £1k challenge appeal saw thousands of people raising £1k each. You'll see the names of each one of them on the walls of the laboratory. The stories, generosity and determination of all these people are the building blocks of our research centre.

And in 1999, the dream was realised, as the Breast Cancer Now Toby Robins Research Centre opened, housed within the Mary-Jean Mitchell Green building at The Institute of Cancer Research, London.

“ ”

I wasn't even born when my grandpa first had the vision of a future where women could live happy, fulfilled lives long beyond a breast cancer diagnosis. And 25 years after the centre became a reality, I am so proud that my grandma's legacy is part of this story of world-leading research and hope.

TOBY FREEDMAN

Granddaughter of Toby Robins and Bill Freedman

“ ”

The Mary-Jean Mitchell Green Foundation is proud to have supported the creation of the centre. This cause is deeply personal to us – our mother, Mary-Jean Mitchell Green, in whose memory the Foundation was established, lost her life to breast cancer when she was 38 years old. Her strength, compassion and determination continue to inspire our commitment to helping others affected by this disease. Over the past 25 years, the centre has made remarkable progress in breast cancer research, and we are honoured to have played a part in this journey of hope, discovery and impact.

ALEXANDER AND ANDREW GREEN

Sons of Mary-Jean Mitchell Green



Toby Robins



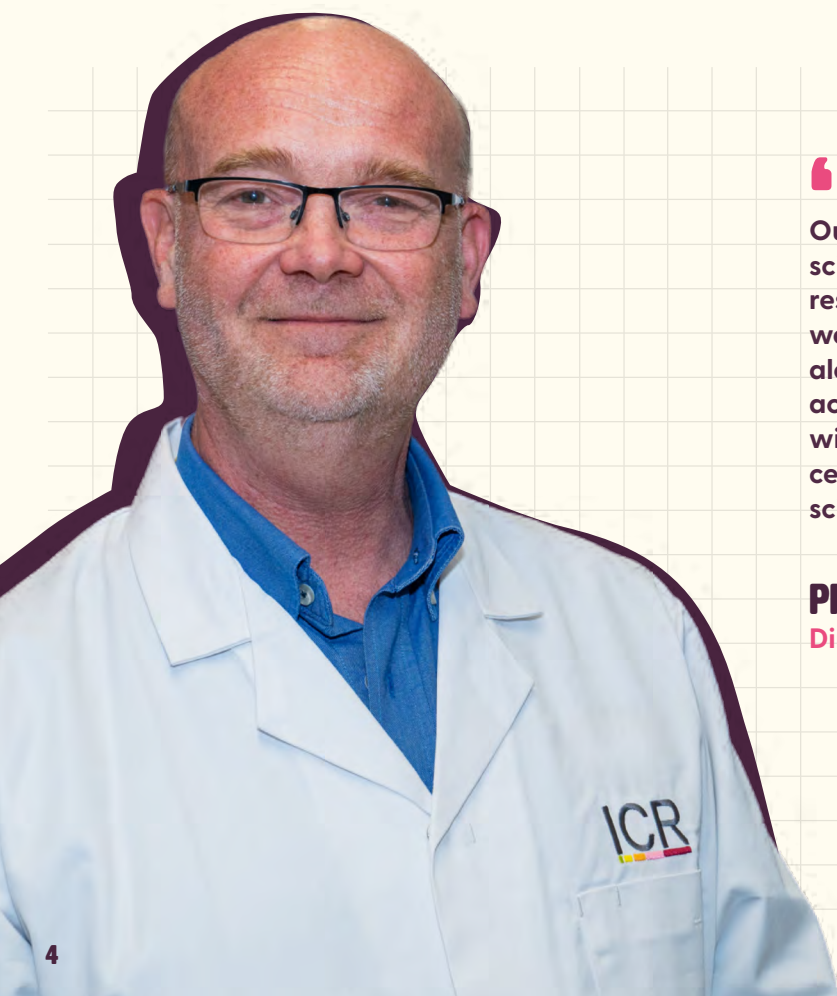
Mary-Jean Mitchell Green

THE CENTRE TODAY

25 years later, our research centre is home to some of the brightest minds in breast cancer research. This was clear in 2022 when our researchers were awarded one of the world's most prestigious cancer research awards, The AACR Team Science Award, for transforming breast cancer treatment.

And in 2024, an expert panel reviewed the research happening at the centre and classed it as 'world-leading'. They recognised its outstanding leadership and mentorship, and the exceptional science that's happening there.

Today, the centre brings together experts from many different fields, including biochemistry, genetics, statistics and bioinformatics. All under the leadership of our centre director, Professor Andrew Tutt. The breadth of expertise allows us to look at every aspect of breast cancer – from how and why it develops, to how it spreads and becomes resistant to treatment. And being right next to the Royal Marsden Hospital, our scientists can work closely with doctors to make sure their research has the biggest possible impact for patients.



“ ”

Our research centre is very distinctive in enabling scientists to carry out groundbreaking collaborative research in search of lifesaving discoveries. Together we can solve the problems that we couldn't solve alone. And by building on the last 25 years of achievements, I'm confident that even more progress will be made in the next 25 years at our research centre. I'm honoured to work with such remarkable scientists – they truly make our centre world-leading.

PROFESSOR ANDREW TUTT

Director of the centre

A REVOLUTIONARY NEW TREATMENT

Since opening its doors, researchers at the centre have been behind huge advances in breast cancer treatment and prevention. And the leaps they've made in understanding the fundamental biology of breast cancer have laid the foundations for more transformative discoveries in the years ahead.

Our researchers played a pivotal role in finding an entirely new way to treat some breast cancers. It's not only changed how the disease is treated today, but also unlocked ways to look for new, kinder treatments in the future.

Thanks to their hard work and the work of their colleagues and other researchers, olaparib is now a life-saving drug for thousands of people with breast cancer. Olaparib is benefiting at least 1,000 people with breast cancer each year in the UK, and many more around the world and with other types of cancer.

But with all groundbreaking treatments, it takes years of discoveries before they can reach people. So here's how our scientists helped take olaparib from bench to bedside.

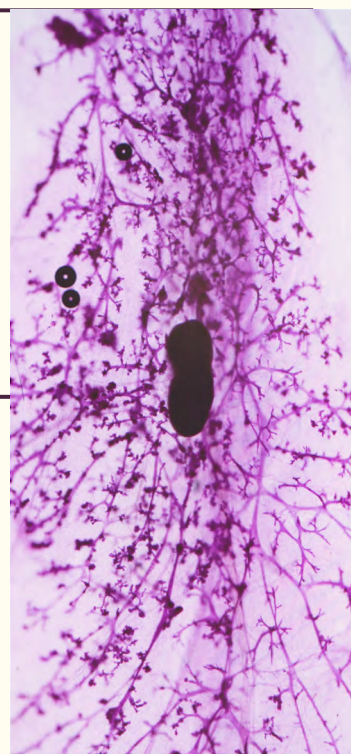


1995

Professors Mike Stratton and Alan Ashworth at the Institute of Cancer Research use our funding to purchase the lab equipment they use to identify the BRCA2 gene. Like the BRCA1 gene, changes in this gene also increase someone's likelihood of developing breast cancer.

2005

Our scientists Professors Alan Ashworth, Andrew Tutt and Chris Lord reveal that a new class of drugs, called PARP inhibitors, work especially well against cancer cells with altered BRCA genes, while leaving healthy cells intact.



2010

Professor Tutt leads 2 clinical trials inviting people with altered BRCA genes who have advanced breast and ovarian cancers to join. And he finds that olaparib slows tumour growth in up to a half of people whose cancers were resistant to chemotherapy.

2017

First results from the OlympiAD trial shows that olaparib works better than chemotherapy. It keeps incurable secondary breast cancer with BRCA gene changes under control for 3 months longer. It also has less severe side effects.





2022



A trial led by Professor Tutt, called OlympiA, shows that olaparib improves survival in some women with early-stage breast cancer and changes in the BRCA genes. Adding the drug to standard treatment cuts the risk of women dying by a third.

2023

Olaparib is approved to use on the NHS to treat high-risk, early-stage HER2-negative breast cancer with BRCA gene changes after chemotherapy and surgery.



2024

As with many drugs, not every tumour responds. Professors Andrew Tutt and Chris Lord find what stops tumours responding to treatment in 60% of people with cancers resistant to PARP inhibitors. It will allow them to look for better ways to treat the disease.

2025

Olaparib is approved to use on the NHS to treat BRCA-altered HER2-negative advanced breast cancer after chemotherapy.

And today, our research is continuing, to better understand resistance to PARP inhibitors and how to stop it. We are continuing to find new and better ways to treat breast cancer.

“ ”

I can't think of anything better than being involved from the beginning of this discovery to seeing it actually changing people's lives. There is no greater reward than seeing that. It has inspired me to do work with others to try to do this again and again and again.

PROFESSOR ANDREW TUTT

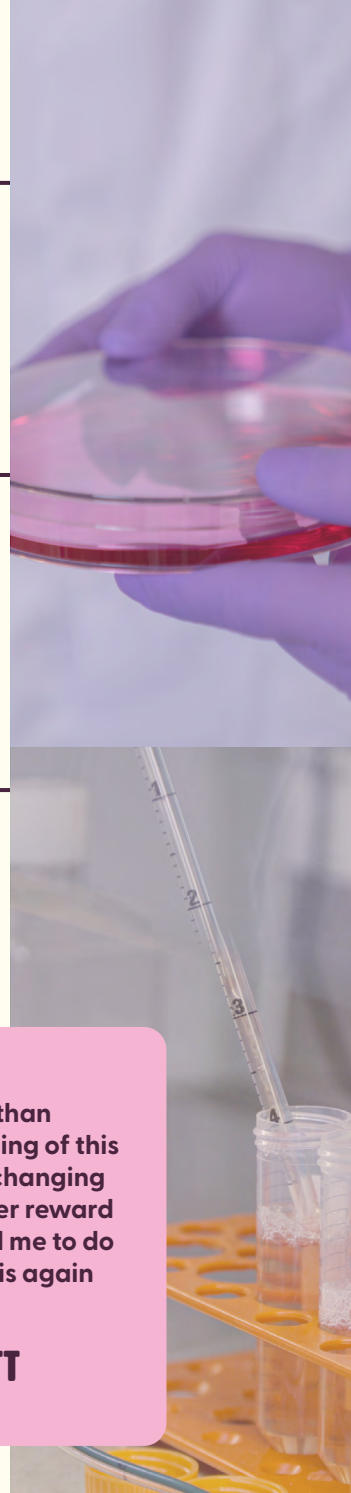
Director of the centre

HOW OLAPARIB WORKS

Over time, our genetic material, or DNA, inside our cells can become damaged. And to keep us healthy, our body has many ways to repair the damaged DNA and prevent cancer. But if changes occur in the genes responsible for repairing DNA, the risk of cancer increases. BRCA1 and BRCA2 are 2 such genes.

Changes in the BRCA1 and BRCA2 genes increase a person's risk of developing breast cancer, because cells can't repair their DNA properly. But too much DNA damage is lethal even to cancer cells. This is the basis of how PARP inhibitor drugs like olaparib work.

PARP inhibitors target a protein called PARP, which is also involved in repairing damaged DNA. In breast cancer cells with altered BRCA genes, this leaves the DNA too damaged for the cancer cells to survive. So the treatment destroys cancer cells, while leaving healthy cells intact. Scientists call this approach synthetic lethality, and it has changed been one of the most significant advances in breast cancer treatment.



A LEGACY OF HOPE

We have a bold vision – that by 2050, everyone diagnosed with breast cancer will live, and be supported to live well. And thanks to researchers at our centre, we're getting closer to making that vision a reality – by giving people affected by breast cancer more and better treatment options. **People like Tina.**

TINA'S STORY

"In January 2015, I started treatment for breast cancer. It was a fairly aggressive cancer, later confirmed as triple negative.

As part of my treatment, I found out that I carry the BRCA1 gene mutation.

After three different types of chemotherapy, surgery and radiotherapy, I was asked to take part in the OlympiA trial into the use of olaparib for treating early-stage breast cancer.

Conventional treatment for cancer is like a series of smacks in the mouth: take this drug which will make you feel awful, then this one to counteract the effects of the chemo, then this one to counter the effects of the steroids. And don't get me started on chemically induced menopause!

Oh, and then you need to have your breast tissue removed.



Tina

Joining any trial when your physical and mental capacities have been stretched to the limit requires you to dig monumentally deep. But I was determined to do it to thank the amazing team that looked after me, and to help improve treatment for others.

Professor Tutt's team were, and still are, amazing. I had the privilege of meeting some of them, all of whom shared the same goal: to find better treatments. Some of the team treated my sister when she also got breast cancer. And lucky me – the trial proved so successful that they called time, so they could get olaparib out to help people as soon as possible.

Olaparib being approved for NHS use is amazing news for all the patients and researchers who worked so hard to find this amazing new approach to cancer treatment."

“ ”

This place is very different to anywhere else I've ever worked. There's a very strong connection to the people we're actually trying to support, and that's a really powerful thing.

PROFESSOR CHRIS LORD

Deputy director of the centre



TACKLING THE BIGGEST QUESTIONS IN BREAST CANCER

We've seen how our research into PARP inhibitors has transformed the lives of people with BRCA altered breast cancer, but so much more has happened under our research centre's roof. For the last 25 years, our researchers have been taking on some of the toughest questions in breast cancer research. In the hope that by finding answers, they'll be able to make the biggest difference to people affected by the disease.



TARGETING BREAST CANCER'S LIFE FORCE

Professor Clare Isacke found that a protein called endosialin, found on cells surrounding the blood vessels, can help breast cancers spread around the body. And when the disease spreads to other parts of the body, it becomes incurable.

She then wanted to use this knowledge to stop breast cancer spreading. So her team engineered a type of immunotherapy, called CAR-T therapy, to target endosialin. This treatment successfully slowed tumour growth and reduced secondary breast cancer in mice. Earlier attempts to use CAR-T therapies to treat breast cancer haven't worked. But Clare's research could make this type of immunotherapy effective against breast cancer. And bring a new, much needed treatment to people.



UNCOVERING THE ROLE OF OESTROGEN IN BREAST CANCER

Professor Mitch Dowsett uncovered the role of the hormone oestrogen in the most common type of breast cancer – ER-positive breast cancer, which accounts for 80% of all diagnoses. Based on this discovery, hormone therapies to treat ER-positive breast cancer were developed and tested. These are now helping thousands of people each year.

And Mitch's team helped to select tests that can tell the chance ER-positive breast cancer has of returning. These tests are now helping some people avoid chemotherapy and improve their quality of life.



PIONEERING CANCER BLOOD TESTS

Professor Nick Turner helped develop a blood test, called a liquid biopsy, that could detect breast cancer coming back many months – and even years – earlier than hospital scans. In the future, this could allow secondary breast cancers to be treated earlier and with more targeted treatments.



HARNESSING THE POWER OF THE IMMUNE SYSTEM

Professor Pascal Meier found key molecules in cells that could train the immune system to recognise and destroy breast cancer. This discovery could lead to new treatments that use the body's immune system to stop breast cancer growth.



SHEDDING LIGHT ON BREAST CANCER IN MEN

Professor Nick Orr discovered 4 genetic changes linked to breast cancer in men. These findings can help identify men at high risk of breast cancer and in the future, this could lead to new ways to prevent and better ways to diagnose breast cancer in men.

THE PEOPLE BEHIND THE SCIENCE

Behind every scientific discovery is a story. One of highs and lows, obstacles and disappointments, eureka moments and celebrations. Dig deeper and you'll find the stories of the researchers themselves – their motivations, personal challenges, childhood dreams and hopes for the future. Here, we meet some of the people behind the groundbreaking research happening at our research centre now.

DR RACHAEL NATRAJAN

While studying at university, Rachael Natrajan lost her mother to secondary breast cancer.

“It was horrific watching her go through it. Her cancer came back very aggressively just 18 months after her initial diagnosis and at the time, chemotherapy was the only treatment open to her.”

Spurred on by the loss of her mum, Rachael decided to pursue a career in cancer research. After finishing her studies, she joined our centre as a post-doctoral research fellow focussing on the genes important to both rare and aggressive types of breast cancer.

“My mum inspired my career choices and was why I was so excited to work here.”

And in 2012 Rachael became a team leader and set up her own lab at the centre. Her work focusses on developing new targeted treatments based on cancer genes. Driven by her mum's experience, Rachael and her team want to understand how the make-up of individual cells within a tumour can affect how aggressive that tumour is and how it responds to treatment – so they can make treatment more effective for everyone.

“The fact we're all working towards the same goal – to help every person diagnosed with breast cancer – makes it very motivating. The range of knowledge and expertise within the centre means we're always learning from one another, which makes it a fun and very interactive place to work.”



DEVELOPING THE NEXT GENERATION OF BREAST CANCER RESEARCHERS

To achieve our vision, we need to invest in the next generation of brilliant researchers – the people who will go on making groundbreaking discoveries. That's why our centre is focused on developing early career researchers. Researchers like Dr Arussa Maan.

Arussa is an early career researcher who is part of a team working on developing 3D mini-tumours in the lab. These are more accurate ways to study cancer than traditional experiments with cells, and will help us to move away from research using mice.

“ ”

The centre is a hugely inspiring place. I'm constantly learning and developing new skills from a whole range of specialists. It's like I'm standing on the shoulders of giants.

For us to tackle breast cancer, I strongly believe that collaboration is key to our success. And I hope to collaborate with even more scientists at the centre to advance our life-saving research.

DR ARUSSA MAAN

Researcher at the centre

25 MORE YEARS OF GROUNDBREAKING DISCOVERIES

Thanks to research, more people are surviving breast cancer than ever before.

In 2000:

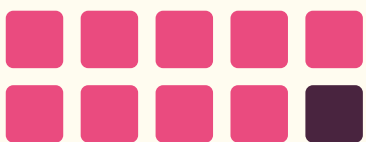
8 IN 10



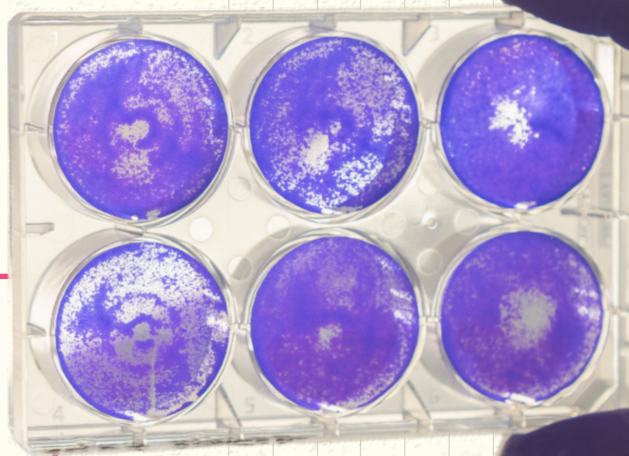
people survived breast cancer for 5 years or more.

Today, thanks to advances in prevention, diagnosis and treatment, that figure is almost:

9 IN 10



But the challenge is far from over. Too many people are diagnosed late. The effects of some treatments can be gruelling. And there are still too few treatments for people with incurable secondary breast cancer.



Each year **11,500 women** and **80 men** die from breast cancer in the UK. And there are an estimated **61,000 people** living with the incurable secondary breast cancer.

With 25 years to go until our vision of everyone with breast cancer living and being supported to living well, it's clear we need to go further, and faster. We urgently need to find ways to detect breast cancer earlier. To develop better treatments that give people a better chance of survival. And kinder treatments that mean people can live well for longer.

To do that, we are investing in the next generation of researchers, capitalising on exciting new technologies, harnessing the power of collaboration and big data, and exploring new developments such as immunotherapy and artificial intelligence (AI).

We need to build on what we've achieved. Make more groundbreaking discoveries than ever before. And turn people's hopes for the future into reality.