worldwide cancer research

Cancer cures started by you

Worldwide Cancer Research Impact Report


worldwide
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research

Foreword from our Director of Research, Dr Lynn Turner

At Worldwide Cancer Research, we start new cures. With your help we can continue to bring forward cancer breakthroughs and be ready to face the cancer challenges of tomorrow.

The stand-out stories you are about to read are a testament to the power of bold discovery research and the difference they have made to people and families affected by cancer.

These incredible steps forward were all started by you. Thanks to your support as a Curestarter, we can continue to work towards a day when no life is cut short by cancer.

Years of collaborative and pioneering research has led to incredible cancer breakthroughs, yet it is still one of the leading causes of death - 1 in 2 will receive a diagnosis in their lifetime. But cutting-edge science can give us hope. We know that a better future for cancer patients is possible, and to get there we need to think outside of the box. We must answer the biggest questions we still have about cancer and use that knowledge to uncover new ways to prevent, diagnose and treat it.

In our first Impact Report we share the many ways we are helping bring forward cancer breakthroughs by:

1. Expanding our global search
2. Funding more bold ideas
3. Increasing our impact in prevention, diagnosis and treatment

These selected stories represent some of the discovery research made possible by our Curestarters over 15 years. Each one shows how taking a calculated risk to support pioneering thinking can lead to life-changing results. Innovative cancer immunotherapy, better testing for a rare infant cancer and cancer-fighting bacteria – these astounding breakthroughs are just a few examples of what has been made possible thanks to your support.

"The discoveries you made possible will help answer some of the biggest outstanding questions we have about cancer."

Dr Lynn Turner

Uncovering our impact stories has been an inspiring and exciting process and I am heartened to see how much has been achieved. By coming together in a united effort, we stand for people with cancer and their families, and can all have hope of a different future when it comes to cancer.

By being a Curestarter and championing the power of discovery research, you are helping to make this possible and for that we are sincerely thankful.

Lynn Turner

Dr Lynn Turner,
Director of Research

Expanding our global search

Cancer is a global problem. We actively seek unconventional and imaginative ideas by researchers around the world. By having a diverse portfolio, we increase our chances of finding new cures to stop cancer.

How do mutations in blood cells cause cancer?

Dr Eunhee Kim, a bright young researcher based in the United States, asked for our help to uncover more about myelodysplastic syndromes (MDS). This group of rare blood cancers is diagnosed in around 2,150 patients a year in the UK.

Dr Kim had discovered that as many as 60% of MDS patients carry a mutation to a gene that controls a vital process – how cells read instructions from DNA to make proteins. These proteins are life's building blocks and are essential for cells to function, grow and survive. She could see that she was on the brink of a breakthrough.

Your belief in supporting pioneering cancer research around the world meant that Dr Kim received the funding to take that important step forward. She learned that the mutation causes faulty proteins to be made that encourage the development of blood cancer.

Her research is still revealing the answers to cancer today. Your support helped her take her bold ideas across continents to her new lab in South Korea.

Incredibly, Dr Kim and her team also discovered that these cells are sensitive to a new type of drug called a splicing modulator. **A clinical trial is now testing the new drug to see if it can help some MDS and leukaemia patients. These patients currently have no other options for treatment, so a new effective drug would be life-changing to them.**

Dr Eunhee Kim

"I would like to express my deep gratitude to all Curestarters. Thanks to their support, I was able to do meaningful research that could help cancer patients and develop my career as a cancer biologist."

Dr Eunhee Kim

Your support has started new cures all around the world – in more than **30 countries and hundreds of research centres around the world** since our founding in 1979.

How can you stop ovarian cancer becoming resistant to chemotherapy?

Professor David Bowtell in Australia needed support to understand one of the biggest problems of treating ovarian cancer – resistance to chemotherapy.

What causes this resistance and can we make the treatments we have work better?

Thanks to your belief that new cancer cures were out there waiting to be found, Professor Bowtell, an international expert could take his first steps towards solving this problem.

He discovered that a particular mutation was linked with cancers that resist chemotherapy. This breakthrough was the first of a whole new programme of work.

Professor Bowtell has since been awarded more than £2.7 million of additional investment in his innovative research, and he currently runs one of the largest ovarian cancer cohort studies in the world.

Several clinical trials are now running to find new cures for ovarian cancer, built on the foundations of his discoveries that you made possible.

Ovarian cancer is one of the ten most common cancers in females worldwide. Professor Bowtell's breakthroughs could go on to change the lives of many people around the world.

"In the lab, we describe impact like this as a home run. It doesn't happen very often – given how complex cancer is – but when it happens it is fantastic."

Professor David Bowtell

Research projects like these have helped discover **at least 15 new ways we could track or measure cancer** – each could help stop cancer in its tracks.

Can we detect people at higher risk of prostate cancer?

Professor Bart Kiemeney in The Netherlands needed the support of our Curestarters to help him to improve a test for prostate cancer. A blood test already existed but did not work perfectly.

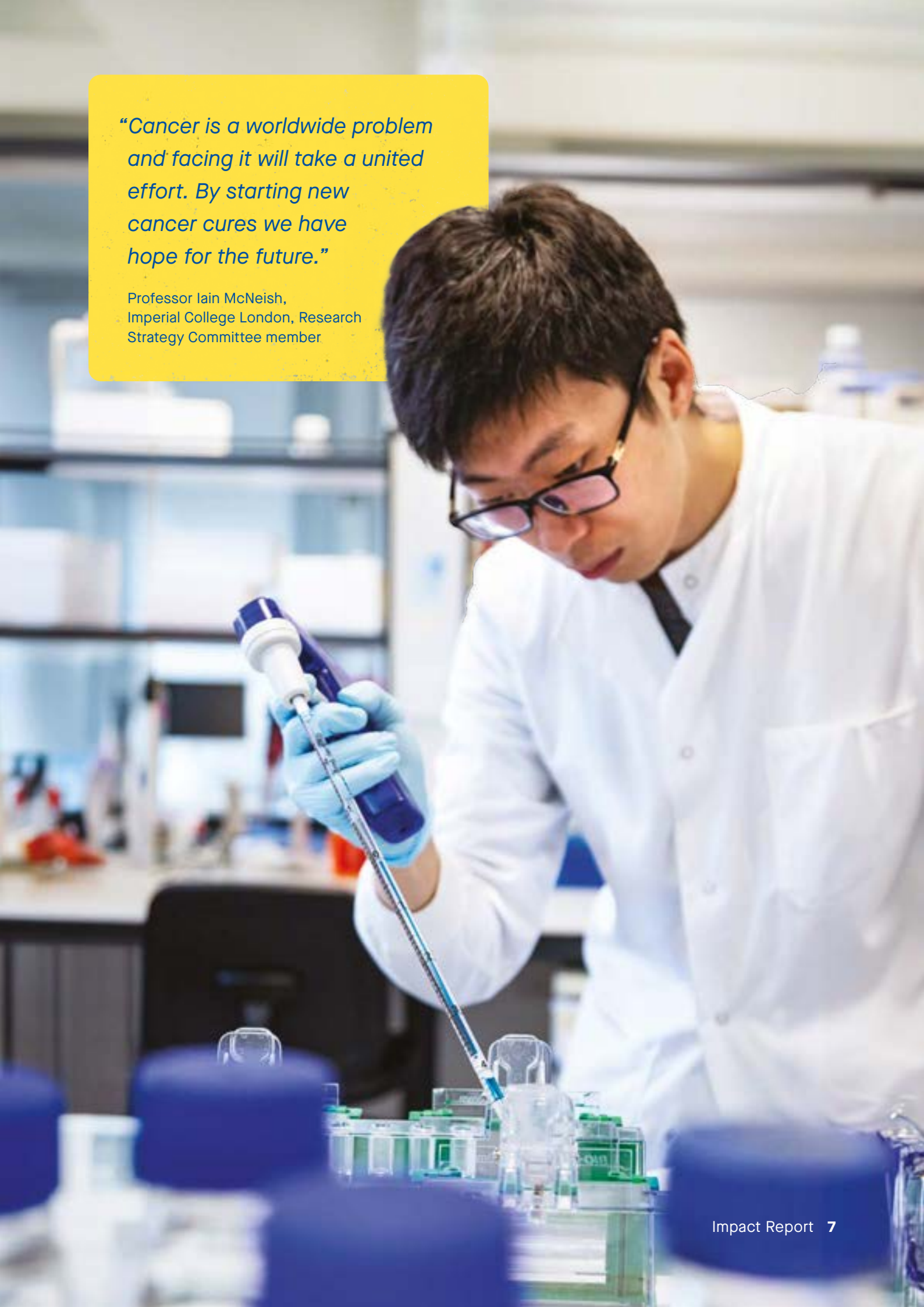
Professor Kiemeney wanted to find out if a urine test used alongside the blood test could help identify patients with aggressive prostate cancer – those in most need of urgent treatment. Thanks to your support, he was able to investigate his idea in people with BRCA mutations – the cancer gene mutation that not only increases the risk of breast cancer, but also of other cancers including prostate cancer.

Unexpectedly, he found that including the urine test did not improve the use of the blood test in identifying high-risk patients. The urine test is no longer recommended by doctors in this circumstance, meaning patients can avoid one more stressful test before receiving a possible cancer diagnosis.

This vital work was undertaken as part of a worldwide research programme, meaning your support helped contribute to scientific discoveries made in collaboration with international researchers.

Importantly, those discoveries continue to help ensure people at risk of prostate cancer receive the care they need sooner.

Our scientists have created more than 300 new research tools which are shared across the world to speed up progress towards new cures. You can help bring forward breakthroughs faster by funding more pioneering research.



"Cancer is a worldwide problem and facing it will take a united effort. By starting new cancer cures we have hope for the future."

Professor Iain McNeish,
Imperial College London, Research Strategy Committee member

Funding more bold ideas

We need real innovation to change the future when it comes to cancer. That is why we focus on funding scientists who think outside of the box. Funding more bold ideas will deliver new cures and open up impactful new areas of research.

Can we use bacteria to attack cancer cells?

Professor Maria Rescigno

Professor Maria Rescigno from Italy came to us with an innovative idea. She wanted to explore whether the Salmonella bacterium - a common cause of food poisoning - could be engineered to treat melanoma. This is a dangerous type of skin cancer that was diagnosed in almost 350,000 people worldwide in 2020.

Interestingly, Salmonella prefers living in tumour cells over healthy cells – this means it will make its way into a tumour once in the blood. Its presence in the tumour kick-starts an immune response against both the bacteria and the cancer cell it is hiding in.

Thanks to your support, Professor Rescigno received the funding she needed to test out her idea. It was a success. She used Salmonella to prevent tumour growth in mice.

Professor Rescigno's creative thinking supported by our Curestarters could soon pave the way for a brand new cancer treatment.

"The main goal of our research is to change the lives of the patients, and when this happens we are very proud."

Professor Maria Rescigno

Bold ideas like this can start new spin-off companies or start-ups, to help transform research breakthroughs into real impact. Between 2001-2016, our researchers created **eight new companies to invest in the future of their pioneering work.**

Professor Jean-Christophe Marine and his lab

Could one treatment work against many different cancers?

Professor Jean-Christophe Marine in Belgium came to us seeking the support of our Curestarters for a brilliant new idea - one that would take advantage of something at the core of many cancers. We know that cancer is a collection of at least 200 diseases, and each will likely need its own cure. What if we could take advantage of something that many of them have in common?

The p53 gene helps to stop cancer forming in the body. Shockingly, it is found to have mutated in more than half of all cancers. Even when p53 is not mutated it sometimes does not work properly.

Thanks to your support, Professor Marine received the funding he needed to understand why p53 might not work as it should. He discovered that a specific protein could be an important part of the puzzle.

Professor Marine's ground-breaking research attracted more investment to develop it further, with support totalling almost £3 million.

Now, a new drug called a 'stapled peptide' could be the next crucial step. Based on Professor Marine's discovery, it restores p53 to normal function and is currently being tested in clinical trials.

The drug has great potential to help many patients in the future. As many as 2-3 million cancer patients a year could benefit from a drug that makes p53 work properly again.

You believed in the power of bold ideas to change lives – thanks to you, we are on the cusp of a new way to help many patients with cancer.

"Cancer is incredibly varied, so research seeking to target common traits shared across many cancers – like p53 – has great potential for the future. New drugs that target p53 could truly revolutionise the way we treat cancer."

Professor Paul Coffer
UMC Utrecht, Research Strategy Committee member

Increasing our impact in prevention, diagnosis and treatment

Your support is essential to find new ways to stop cancer – new approaches to the prevention, diagnosis, or treatment of this devastating problem. The groundbreaking discoveries made by our scientists are the vital first step towards life changing new cures.

How can we diagnose malignant rhabdoid tumours sooner?

Dr Agnes Klochendler in Israel came to us in 2003 to ask for our help understanding malignant rhabdoid tumours (MRTs) - a rare childhood cancer that normally starts in the kidneys.

At the time, diagnosis of the children affected often happened late when little could be done to help them. Thanks to your support, Dr Klochendler was able to undertake pioneering work that made a major breakthrough. A single mutation in a gene, called SNF5, was behind this lethal and aggressive cancer.

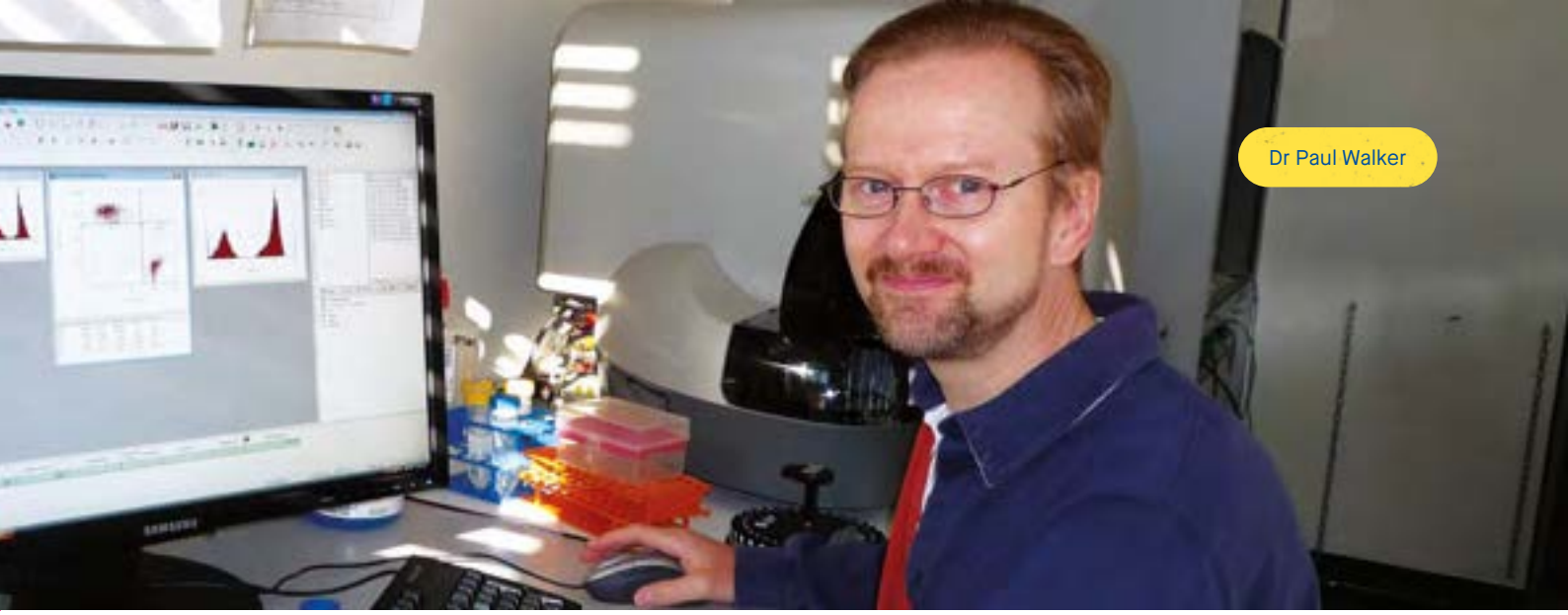
Currently doctors can diagnose MRTs much sooner by testing for SNF5. This has transformed the lives of many families, as it helps avoid any delay to the start of their child's treatment.

Thanks to our Curestarters, Dr Klochendler's new idea has given many children around the world the chance to live longer, happier lives.

"There is always someone for whom research produces a new treatment just in time – that's why I'm proud to be a Curestarter."

Our incredible Curestarter, Pat

The bold ideas you started have helped discover **six potential new ways to diagnose cancer**, which could help patients get the care they need sooner.



How do genetic changes in blood cells cause cancer?

Dr Paul Walker in Switzerland asked for our help to explore a new way to treat brain tumours. What if we could harness the power of the immune system – an approach called immunotherapy – to kill cancer cells?

Thanks to the support of our Curestarters, Dr Walker was one of the earliest researchers to study immunotherapy for brain tumours. He and his team uncovered new knowledge about immune cells called 'T cells', such as how they protect the central nervous system from disease.

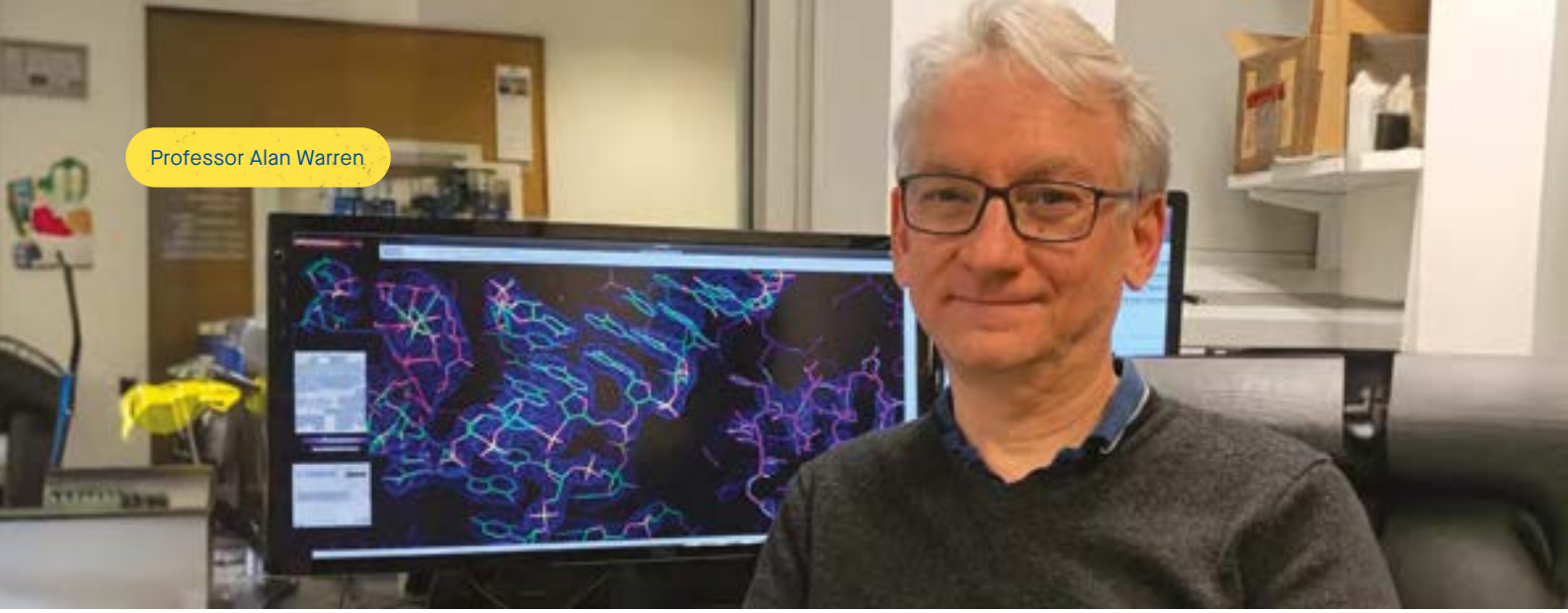
Dr Walker's discoveries were so valuable that they now sit at the start of a huge area of research. They led to several clinical trials testing immunotherapy for brain tumours – a cancer type in vital need of new treatments.

T cells have since become one of the 'stars' of immunotherapies used for several cancer types, thanks in part to that early start you helped make possible.

"Curestarters really have started something - this is just the beginning of scientifically-based new approaches for cancer treatment that are reaching more and more patients."

Dr Paul Walker

New cures for cancer are coming – **the ideas you supported have led to 38 new clinical trials.** That means 38 new ways to stop cancer that could soon start changing lives.



Professor Alan Warren

What is Shwachman-Diamond syndrome and how does it lead to cancer?

Professor Alan Warren in Cambridge, UK needed support to better understand what causes Shwachman-Diamond syndrome (SDS) - a rare, inherited childhood blood disease that often develops into leukaemia. Professor Warren hoped to find new cures to help the 1,500-2,000 people estimated to be affected in the USA and Europe.

Your belief in the life-changing power of discovery research helped Professor Warren make crucial breakthroughs. They have led to better diagnosis and personalised medicine for those patients more likely to develop SDS.

He explained that as he and his team were studying a rare disease, it was difficult in the beginning to raise the funding needed to continue the important work. The support he received from our Curestarters was critically important.

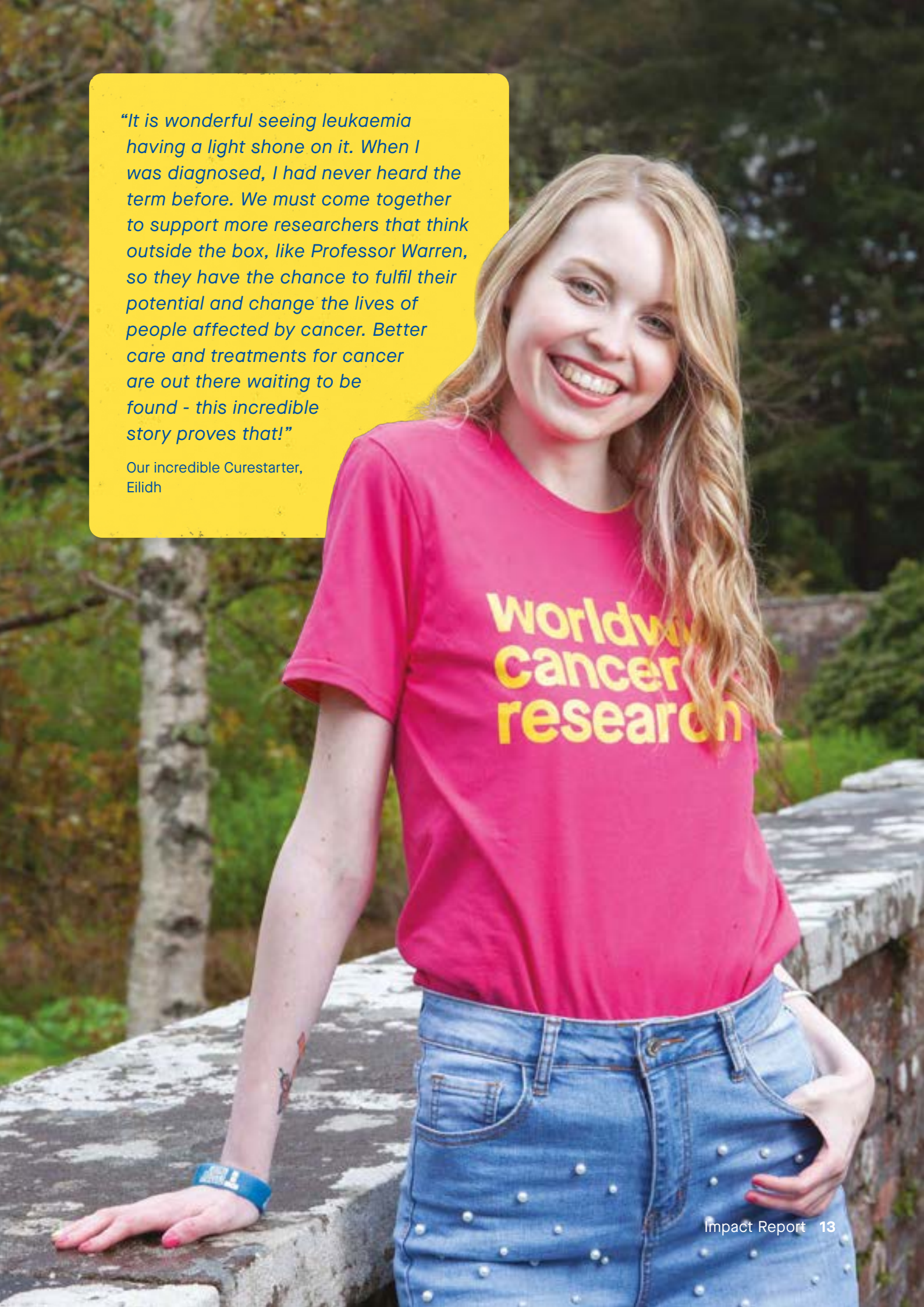
Professor Warren has since helped to set up a new national multidisciplinary clinic at Cambridge University Hospitals. The clinic helps families that carry an inherited risk of blood cancers.

He has also helped establish a national charity that supports the needs of these families, provides further research on SDS and better access to health services. **These wide-reaching activities have been transformative for families affected by SDS.**

"It has been a privilege and honour to work so closely with patients and their families to deliver tangible benefits for this community."

Professor Alan Warren

The cures you helped start are having real impact, from the lab to the clinic – including **7 breakthroughs that informed recommendations on the care of patients.**



"It is wonderful seeing leukaemia having a light shone on it. When I was diagnosed, I had never heard the term before. We must come together to support more researchers that think outside the box, like Professor Warren, so they have the chance to fulfil their potential and change the lives of people affected by cancer. Better care and treatments for cancer are out there waiting to be found - this incredible story proves that!"

Our incredible Curestarter, Eilidh

Help us unlock the cancer cures of tomorrow

Looking ahead with the Chair of our Scientific Advisory Committee

This outstanding collection of stories is a testament to the power of bold discovery research to change the lives of those affected by cancer.

In this report, you have read how your support has helped to bring forward cancer breakthroughs. Cancer-targeting bacteria, immunotherapy, and even a new patient-focused charity. This is what we can achieve together by supporting innovative cancer research wherever it is found.

None of these incredible success stories would have been possible without our Curestarters; our marathon runners, community fundraisers, partners, legacy donors and more. Because people like you believed that things could be better, we are achieving our mission and bringing forward breakthroughs.

"Your generosity will continue to make a difference for many years to come."

Those breakthroughs, and our understanding of cancer, will only continue to expand. That new knowledge will be vital to finding ways to prevent, diagnose, and treat cancer in the future - so your generosity will continue to make a difference for many years to come.

In fact, for every £1 we spent starting new cures, another £4.34 of innovative research was made possible.

Worryingly, funding for discovery research has declined by around 25%. This cannot continue, or we risk missing the next big breakthrough. As Chair of the Scientific Advisory Committee, I have seen many brilliant ideas miss out on our support, only because our funding couldn't stretch far enough. Every year we wonder what might have been possible had we been able to start even more cancer cures.

"Worryingly, funding for discovery research has declined by around 25%."

By uniting and coming together in support of discovery cancer research, we can bring forward more breakthroughs. Cancer is a worldwide problem and facing it will take the united effort of the brightest cancer researchers around the world.

Excitingly, the next revolutions are just on the horizon. Targeted therapies promise to treat cancer with pinpoint precision, leaving healthy tissue unharmed - that would mean more accurate and kinder treatments for patients. Personalised medicine also has incredible potential - patients could be offered the best treatment for them as an individual.

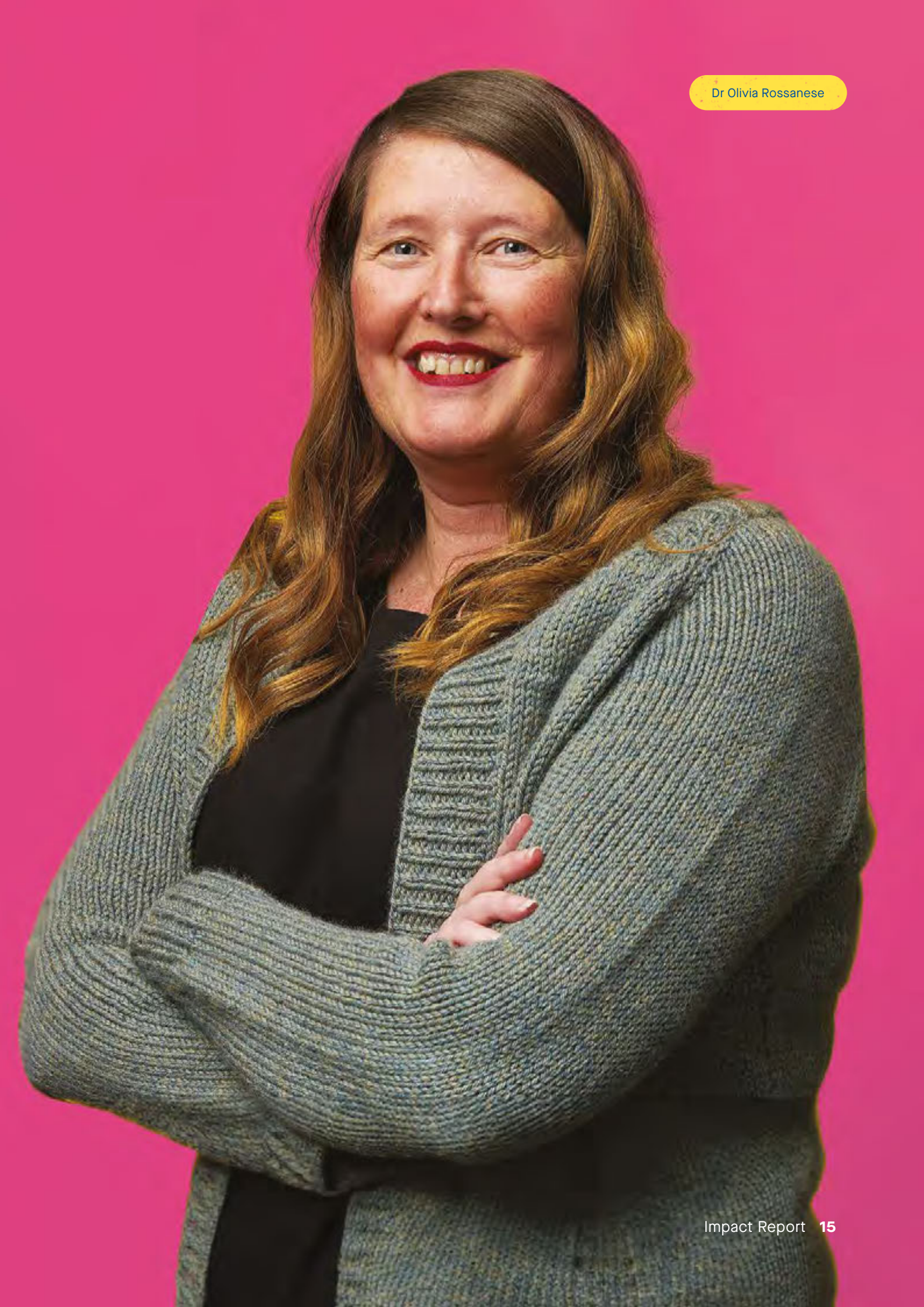
But none of this can happen without a deep understanding of how cancer works - we can't accurately target something we can't 'see' properly. That is why we must continue to support discovery research, or these great steps forward may not be possible.

"We must not miss the next big breakthrough."

Worldwide Cancer Research has set itself a clear goal to make that happen – as champions of discovery cancer research worldwide, we want to fund every exciting new idea that meets our criteria. That means increasing the volume of our support from 20 to 100 ideas funded each year by 2030. This will allow us to uncover the potential of so many more brilliant ideas from all around the world.

We must not miss the next big breakthrough. By being a Curestarter and championing the power of discovery cancer research to change lives, you can make our vision – of a day when no life is cut short by cancer – a reality.

Dr Olivia Rossanese,
Chair of our Scientific Advisory Committee


Dr Olivia Rossanese

Thank you for being a Curestarter

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