CANCER RESEARCH HORIZONS

Annual review

2023/24

FURTHER FASTER TOGETHER
We are beating cancer

Our business is **breakthroughs**

14

marketed drugs that we significantly contributed to

£3bn

raised by companies in our portfolio

with

£600m+

reinvested into Cancer Research UK to fund further research

and

8 in 10

NHS cancer patients treated with cancer drugs receive a drug that Cancer Research UK helped develop

79

start-ups formed, with 23 exits from our portfolio

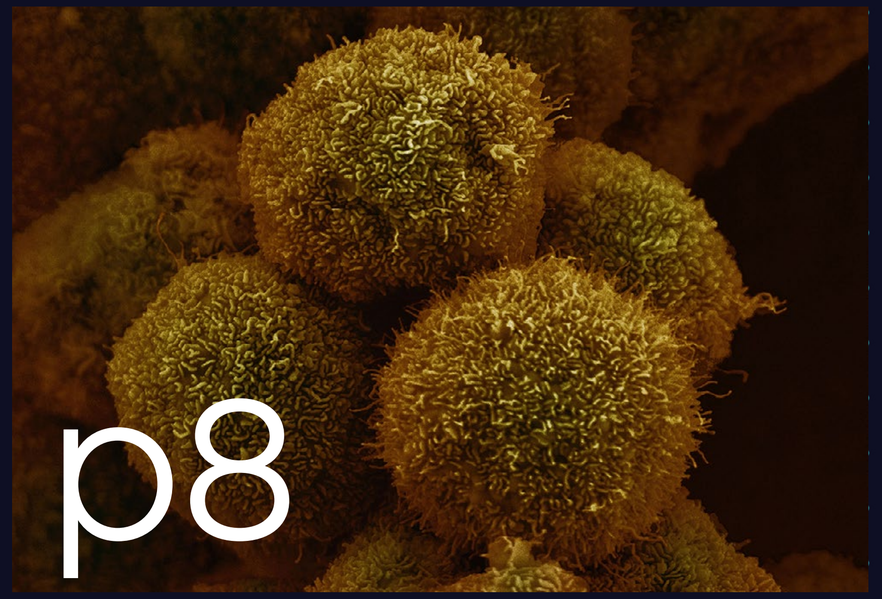
Since 2000, including contributions from our predecessor, Cancer Research Technology.

Contents

"We are accelerating progress across the translational pipeline, with capabilities spanning drug discovery and development, to support with start-up creation, licensing and entrepreneurial training."

Iain Foulkes, Chief Executive Officer

p4



p8

p20

p17

"Taking cutting-edge innovations from the lab and translating them into effective treatments for patients is super difficult."

Christoph Lengauer, Chair of the Therapeutic Innovation Board

p33

p26

A growing momentum as we enter our third year

We launched Cancer Research Horizons to help move cutting-edge research beyond the lab and into the tools, tests and treatments of tomorrow.

The innovation subsidiary of

CANCER RESEARCH UK

With the number of new cancer diagnoses predicted to reach 28 million by 2040, the importance of unlocking innovation to treat clinical needs cannot be underestimated. Cancer Research UK has a network of 4,000 researchers around the world, providing us with a unique view of exceptional research. We want to ensure the breakthroughs that can improve lives can progress.

As we enter our third year as Cancer Research Horizons, we are gaining significant momentum, with projects and programmes reaching important milestones. Two medicines that we contributed to the development of achieved significant approvals in the last financial year, and after making our bold decision to back the development of the world's first IgE antibody drug, MOv18, it was fantastic to see promising results emerge from a Phase 1 clinical trial.

Throughout this review, you'll read how we are accelerating progress across the translational pipeline, with capabilities spanning diagnostics, drug discovery and development, start-up creation, licensing and entrepreneurial training.

We know that so much of our success is down to the people leading the science, and our partners in industry and the investment community: turning discoveries into new clinical applications isn't easy and takes resilience, creativity and collaboration. I am delighted that our Innovation and Entrepreneurship Awards can recognise and celebrate these innovators. Whatever the translational journey, we're proud to empower researchers to maximise the impact of their science, every step of the way.

We have also bolstered our own expertise by welcoming new life-science experts to our leadership, with Annalisa Jenkins and Christoph Lengauer joining our board of directors, Jonathan Tobin and Genghis Lloyd-Harris appointed as our first investors-in-residence, and Lars Erwig becoming director of Cancer Research UK's Centre for Drug Development. Their appointments will help us make new connections and bring additional insights.

Our position at the intersection of industry and academia in cancer research means that we can forge partnerships to address areas that others might find challenging. For example, we recently committed to developing urgently needed, new medicines for children and young people with cancer through C-Further, a new international consortium we are launching with LifeArc to bridge the gap between the lab and patient care.

I hope you will share our pride in the progress we've made this year and our enthusiasm for what's on the horizon. I would like to thank all the researchers, partners and patients who have helped us get to this point. Every new collaboration takes us one step closer to better cancer care. Contact us if you share our vision, and we can go further, faster, together.

Iain Foulkes
Chief Executive Officer,
Cancer Research Horizons

Our **impact**

From bringing new medicines, tools and diagnostics to market to creating new companies, we're beating cancer.

Our 2023/24 in numbers

12
investments in early-stage start-ups

142
invention disclosures

£3.6m
committed through our Seed Fund

2
approvals for treatments that we contributed to

4
new clinical trials or treatment arms started

39
priority patents filed

6
companies added to our start-up portfolio

A long-term vision for patient benefit

We're here to make the most of research that could benefit patients. We prioritise long-term goals over quick returns because we know that the journey from the lab bench to the bedside is a long one.

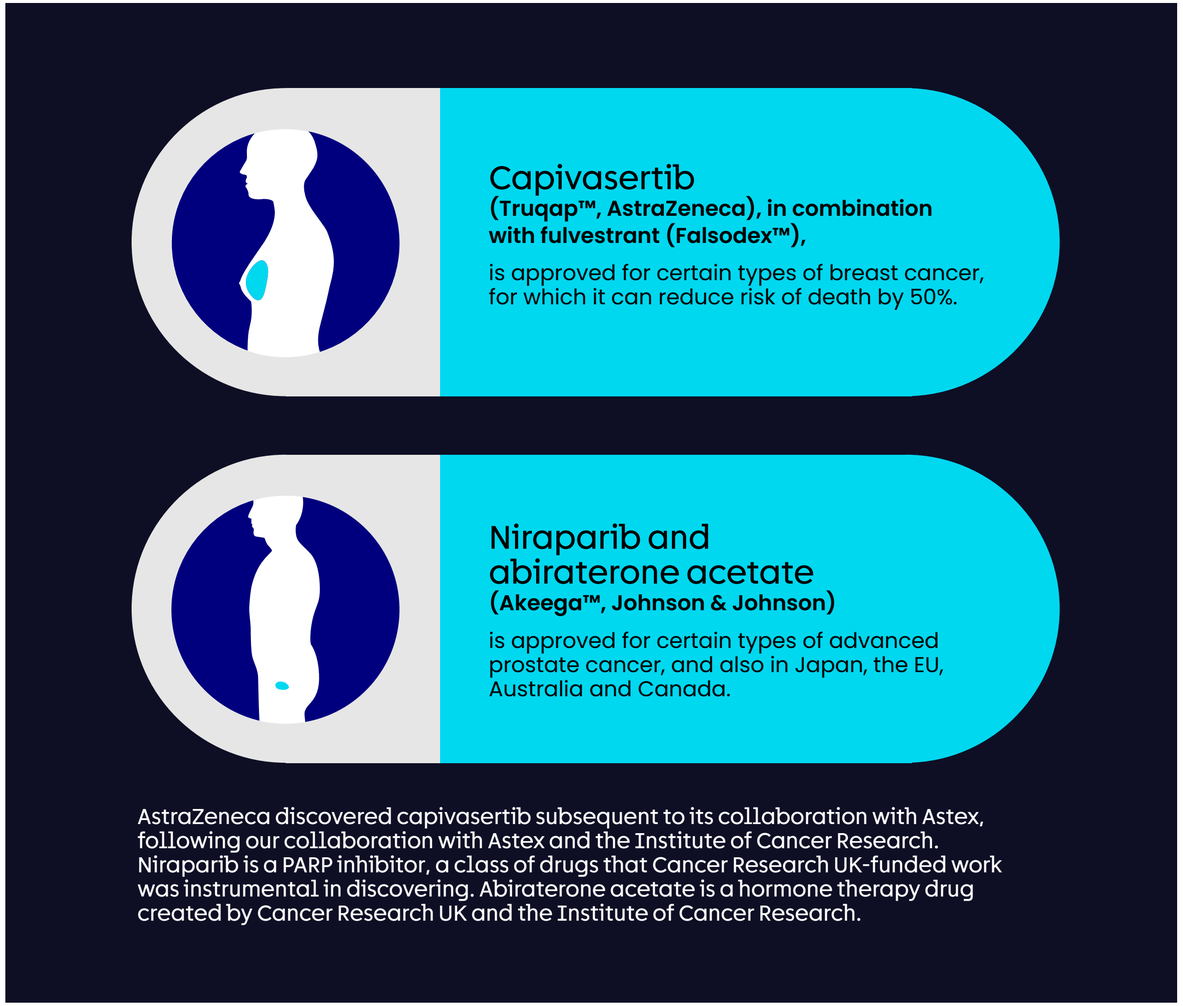
Our teams offer the full spectrum of translational expertise to support this journey. Working directly with researchers, we file invention disclosures to outline the potential impact of a discovery, and priority patents to establish its ownership.

If launching a start-up is the best way to progress, we support with company creation and provide crucial early-stage investment. Our drug discovery scientists can help validate potential treatments to make them attractive to scale-up investment.

For treatments that are ready to enter the clinic, we partner with companies to get their assets into early-phase trials through Cancer Research UK's Centre for Drug Development. We will then find the right pharmaceutical company to continue their development.

After this long and complex journey, we are always incredibly proud when treatments are approved and can benefit more patients. We've made significant contributions to the discovery or development of many treatments, either through work funded by Cancer Research UK or carried out by our own scientists.

This year, the US Food and Drug Administration (FDA) approved two of these treatments.



"Capivasertib represents a new class of treatment for breast cancer, which can help to slow down the cancer's progression and give patients with advanced disease precious extra time living well."

Professor Kristian Helin, Chief Executive, Institute of Cancer Research

"The approval of Akeega™ brings an important treatment option to patients with prostate cancer as they consider their road ahead."

Shelby Moneer, Vice President of Patient Programs and Education, ZERO Prostate Cancer

Promising pancreatic cancer drug reaches major milestone

The FDA granted Orphan Drug Designation to cambritaxestat in March 2024. This regulatory milestone gives financial incentives to develop promising treatments for rare diseases.

The first-in-class drug is showing promise in early trials (**NCT05586516**) for people with pancreatic cancer. Pancreatic cancer is a hard-to-treat disease, with 10-year survival of just 5%.

Cambritaxestat was designed and synthesised in our drug discovery laboratories and developed by iOnctura, an immuno-oncology company spun out from Merck KGaA in 2017, based on two assets from the Healthcare R&D portfolio of Merck and three assets from Cancer Research Horizons.

We are continuing our collaboration with iOnctura to support the progression of their exciting portfolio.

"Orphan Drug Designation will support our goal to accelerate cambritaxestat through the clinic to provide a new treatment to patients with limited options."

Catherine Pickering, Chief Executive Officer, iOnctura

Pancreatic cancer cells under a scanning electron microscope. Credit: London Research Institute Electron Microscopy Unit

IONCTURA

Swallowable test helps reduce waitlists for oesophageal cancer diagnosis

Catching cancer at an early stage offers the best chance of effective treatment – but too often, people wait too long for diagnostic tests.

EndoSign® (formerly known as Cytosponge) is a novel early detection device that could dramatically cut waiting times for oesophageal cancer tests by testing for Barrett's oesophagus, a precursor to the condition.

The device's inventors launched the company Cyted in 2020 to continue its development and work towards product launch. In the following year, we licensed Cancer Research UK-funded data to support Cyted's development of AI tools that analyse the samples collected with the device and have an equity stake in the company as a result. In May 2023, Cyted raised £13.4m in funding to advance its R&D programmes.

In February 2024, an NHS trial (**ISRCTN91655550**) found that around 8 in 10 people tested with Endosign® did not have Barrett's oesophagus and so didn't need to join the waiting list for endoscopy. By offering those at higher-risk speedier access to the tests they need, Endosign® could help reduce the number of people diagnosed with oesophageal cancer at a later stage.

The device also received 510(k) FDA clearance this year, marking an exciting step to bring EndoSign® to more people around the world.

Supporting **researchers**

We provide funding, advice and expertise to help translate the most promising discoveries into tools, tests and treatments for people with cancer.

Maximising the potential of research

It's not always easy to navigate the early stages of taking a discovery from the lab bench to the bedside, and each scientist's journey to translation is different.

Whether it's protecting an idea, unlocking the potential of data, or bringing a new tool to the wider community, we support researchers every step of the way to maximise the impact of their work.

We are always excited to see promising innovations move closer to benefitting patients. In 2023/24, we met with 475 researchers to explore translation opportunities and awarded over £500,000 of development funding to help progress promising projects.

Our year in numbers

475
researchers met

£554k
project development funding awarded

Supporting researchers to protect and develop their ideas

Whatever path an idea takes towards translation, it is essential to review the intellectual property (IP) strategy before any publication or disclosure to maximise the chances of success.

A researcher makes a discovery

Assessment

A discovery can't be patented after it's public, so before researchers share their work we assess clinical, translational and market need and begin to develop an IP strategy.

Patent filing

Together, we draft and file a patent application.

Project development

We strengthen the project with access to funding and resources, such as entrepreneurial skills training (more on page 16), our drug discovery engines (page 29) or seed funding to support start-ups (page 23).

Partnering

We secure partners to take the project forward and ensure innovative ideas reach the people who need them.

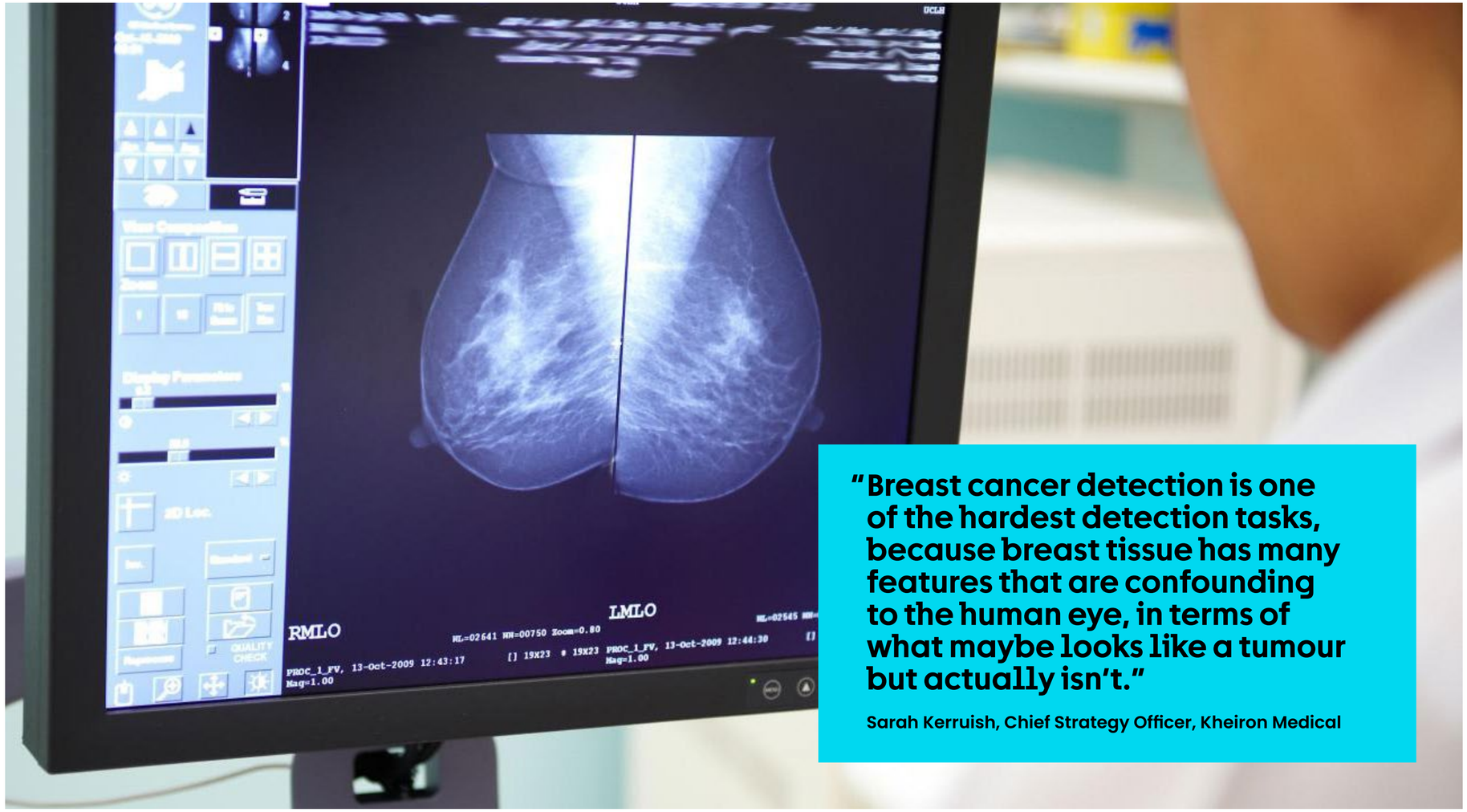
This year we filed

142 invention disclosures

39 priority patents

22 international PCT patent filings

Helping researchers to maximise the impact of their data



> **"Breast cancer detection is one of the hardest detection tasks, because breast tissue has many features that are confounding to the human eye, in terms of what maybe looks like a tumour but actually isn't."**
>
> **Sarah Kerruish, Chief Strategy Officer, Kheiron Medical**

The data generated through Cancer Research UK-funded projects is a treasure trove of insights that could revolutionise patient care. As a research community, partnering with companies who can use novel analytical techniques to pose new questions of this data can help to maximise its impact and support the development of AI-enabled tools.

We have secured commercial data partnerships for three datasets, providing specialist organisations with non-exclusive, time-limited access to derive new insights and bring new advances to patients.

One of those datasets is OPTIMAM, a large, curated database of 2D and 3D mammogram images from the NHS breast cancer screening programme. It spans over 10 years and includes normal, benign and malignant cases, richly annotated with clinical data. As of this year, we've enabled 20 commercial licence agreements with access to OPTIMAM.

Our partners include Google Health, who will use the dataset to develop and test AI-based tools to help radiologists interpret mammograms more effectively, ultimately aiming for more effective diagnosis.

Valid concerns around trust and privacy remain major barriers to progress and it's imperative that these partnerships are transparent and protect the privacy of patients who have contributed their data. We've been working closely with patient advocates to develop processes that enable safe, secure and transparent commercial data partnerships that support researchers to license their data.

Fukushima researchers join CancerTools.org to take their organoids global

Patient-derived cell lines have been a staple of cancer research for decades. But after becoming frustrated with non-cancerous cells overwhelming their samples when using standard cell line production techniques, biologists Hirosumi Tamura and Gen Hiyama tried a new approach.

The unexpected result was a cancer organoid: a 3D mass of cells with striking similarity to the samples they came from. Compared to traditional cell lines, the organoids were easy to maintain and expand in culture and more closely resembled the clinical tissue's histology and gene expression.

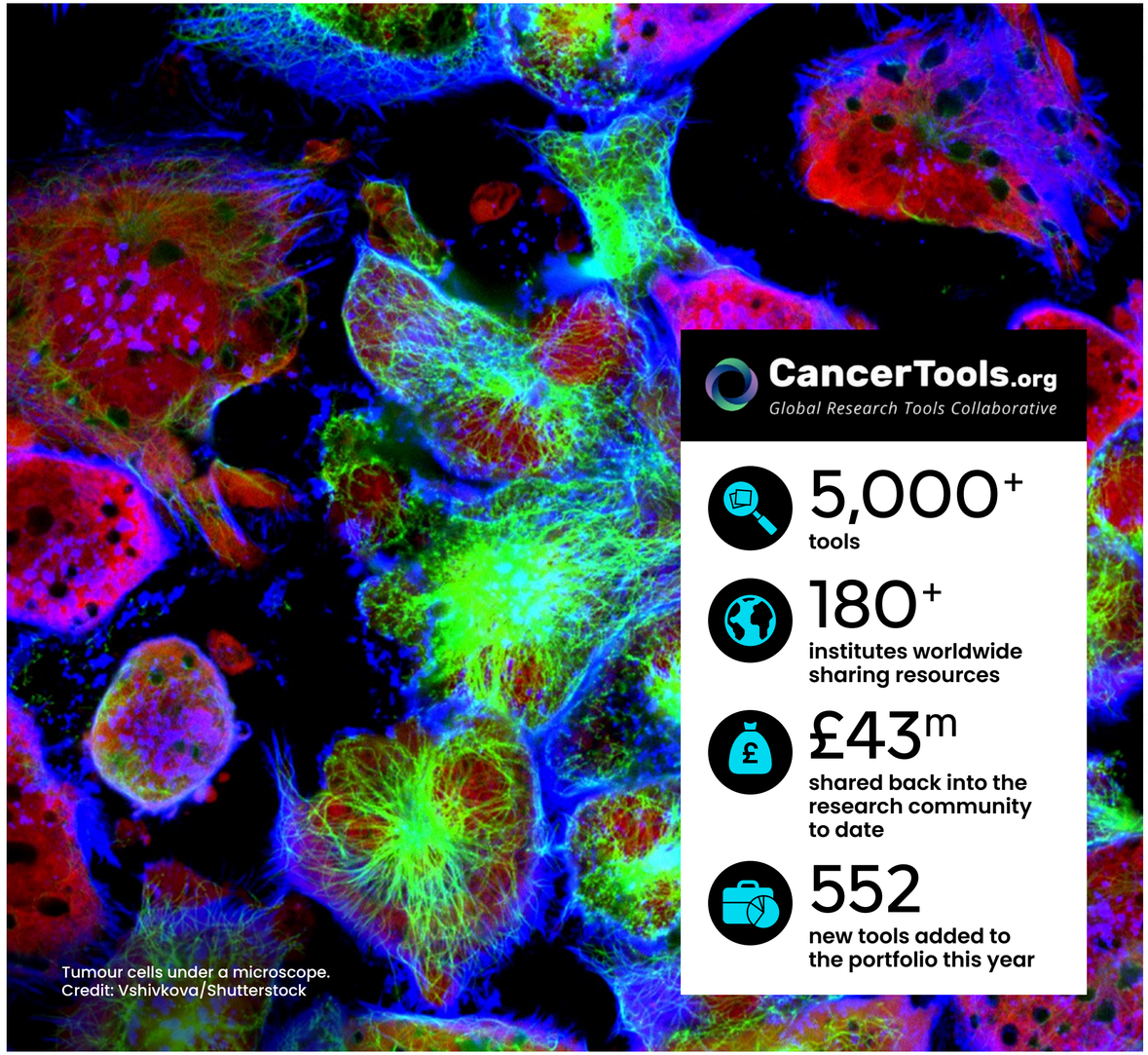
The team decided to make their organoids available to other researchers. "We thought CancerTools.org would be the best opportunity to introduce our patient-derived organoids to the global market," says Hirosumi.

CancerTools.org is our global non-profit biorepository where researchers can deposit and access tools and knowledge to drive innovation, streamlining the logistical challenges of admin and material transfer arrangements.

We're currently storing and preparing 46 of the team's organoid cell lines at our dedicated facilities. Soon, the research community will have access to these and be able to grow them in their own labs, to accelerate their research.

"We hope to see the use of our patient-derived organoids by as many researchers as possible."

Hirosumi Tamura (pictured) and Gen Hiyama, Fukushima Medical University



Tumour cells under a microscope. Credit: Vshivkova/Shutterstock

Stimulating **entrepreneurship**

We support researchers in developing the skills, resources and confidence they need to maximise the impact of their research and drive innovation.

Building a community of entrepreneurially minded researchers

Scientists already think like entrepreneurs – seeking collaborations, identifying knowledge gaps, solving problems. Learning to harness and shape this mindset can help researchers maximise the impact of new discoveries.

Through our entrepreneurial programmes, we are cultivating an academic community where entrepreneurship is both enabled and incentivised.

Researchers are offered the opportunity to develop entrepreneurial knowledge and skills, build connections with translational experts and mentors, and access technical infrastructure and business capabilities. This develops their ability to translate their discoveries into applications that can benefit cancer patients.

Our year in numbers

9
programmes helping researchers take the next step on their entrepreneurial journey

81
teams supported through accelerator and incubator schemes

77
early-career researchers supported through training and mentorship opportunities

Venture Builder Incubator: turning research into data-driven businesses

The Venture Builder Incubator 2023 intake on showcase day

"Since I was already doing a PhD in bioengineering and I was developing biosensors, I thought maybe there is a way to improve cervical screening in a way that's non-invasive."

Sânziana Foia, VBI 2023 intake, inventor of Papcup

While suffering severe period pain, bioengineering PhD student Sânziana Foia was struck by an idea: could menstrual blood be used in a non-invasive, at-home test for cervical cancer?

Sânziana took part in the University of Edinburgh's Venture Builder Incubator (VBI) in 2023, armed with Papcup, a biosensing device that screens period blood for human papillomavirus (HPV), the leading cause of cervical cancer. Through our partnership with the University of Edinburgh, she received seed funding, one-to-one support and access to curated events to advance Papcup into a promising start-up.

"The VBI was incredible," says Sânziana. "One of the best things was the concrete, practical help. For example, when I needed help with electronics, they helped me to find a contractor."

Sânziana is now creating the next version of Papcup which could be tested in pilot studies. If successful, Papcup could make cervical cancer screening more accessible.

PAPCU

Nurturing a community that wants to create change

Innovation Summit 2023

We run a programme of events and awards to celebrate innovation and empower researchers to spark new connections.

Back for its fourth year, our Innovation Summit took place in London in November. Almost 200 attendees joined a packed schedule of networking and inspiring discussions, with topics ranging from the early stages of translation and navigating industry partnerships, to emerging trends in innovation and how AI is impacting oncology.

Join us for our next Innovation Summit – see our website for details.

"We're at such a fascinating point in history for oncology."

Rebecca Todd,
Venture Partner, Longwall Ventures

"Cancer Research UK and Horizons were instrumental to our success."

Simon Boulton, Vice President of Scientific Strategy, Artios Pharma

Innovation and Entrepreneurship Awards

Seeing research translated into products and services that benefit patients is incredibly important to us. We regularly celebrate the UK's most enterprising efforts in translating discoveries into patient impact with our Innovation and Entrepreneurship Awards.

Meet this year's winners

Woman Entrepreneur of the Year

Ishani Malhotra, Founder and Chief Executive Officer, Carcinotech

Ishani launched Carcinotech to accelerate drug development with its platform for 3D printing living tumours.

Early-career Entrepreneur of the Year

Matt de Vries, PhD researcher at the Institute of Cancer Research

Matt gained early funding for Sentinal4D, an AI-powered drug discovery start-up that he hopes will reduce the cost of drug development, after taking part in the Cancer Tech Accelerator.

Entrepreneurial Group Leader of the Year

Maike de la Roche, Cancer Immunology Group Leader at the University of Cambridge

Maike's collaboration with commercial partners and attraction of investment have played a key role in progressing CAR T-cell technology research.

New Start-up of the Year

Dotplot, founded by Shefali Bohra and Deborah Babalola

Dotplot is developing an at-home breast monitoring tool to help diagnose breast cancer earlier.

Horizon-Explorer Recognition Award

Bart Vanhaesebroeck

Start-up Achievement Recognition Award

Artios Pharma

Entrepreneurship Recognition Award

Nitzan Rosenfeld

Further, Faster, Together Award (Industry-Academia Collaboration)

University of Dundee and Boehringer Ingelheim

University of Edinburgh and Nuvectis

Each cross-sector partnership is developing novel cancer treatments.

Fostering **start-ups**

Our dedicated Cancer Research Horizons Ventures team is focused on identifying innovative propositions in oncology, the exceptional entrepreneurs behind them, and accelerating the formation and financing of early-stage start-ups.

Fostering start-ups for patient benefit

We've played a role in the creation of 79 start-ups, including through licensing IP, investment, or both. But far too many breakthroughs still stall in their early stages due to a funding gap between academic research and a start-up becoming ready for scale-up investment.

That's why in 2022 we launched our own Seed Fund – a £15m investment commitment from Cancer Research UK, managed by our Ventures team. We're also fundraising to boost the fund, to extend its scale and longevity.

We provide seed funding, access to expert networks and business building support to founders with high-potential, early-stage innovations. We do this globally from within and beyond the Cancer Research UK network to propel them into patient impact faster.

To date, we've committed £7.8m early-stage funding to 19 exciting new ventures, with 15 of our investments leveraging a further £32.7m to progress further to patient impact.

Our year in numbers

6
new companies added to our start-up portfolio

12
new investments in early-stage start-ups

£3.6m
committed through our Seed Fund

£10m+
of third-party capital raised alongside 7 of our investments

Impact-first catalytic investment

Our investment decisions are driven by the potential for patient impact. We take risks others can't, adopting novel and challenging ideas that hold promise for real innovation, meet unmet need and have the potential to save and enhance lives.

Having a sustainable fund that isn't subject to market fluctuations or shareholder return allows us to take risks others can't and to take a long-term view. We can invest alone or alongside other like-minded investors.

In 2023/24, we committed a total of £3.6m into 12 innovative start-up companies, with seven leveraging more than £10m in third-party capital, highlighting the importance of our role as validating investors.

Our Seed Fund provides support at each stage of the start-up process

Early-stage validation capital

Rapid-access funding to bridge the gap between a new idea and validating data, obtain expert regulatory advice or support market research.

Up to £50,000

Up to **£50k**

Pre-seed capital

Investment capital to evaluate and support technical feasibility and commercial potential of early-stage technologies.

Typically £50,000–£150,000

Up to **£150k**

Seed capital

Investment capital to assist company creation and early growth or further develop a start-up proposition before company creation.

Typically £100,000–£500,000; up to £1m

Up to **£1m**

Follow-on capital

To help drive maturation of our portfolio companies, where additional capital may boost external investment.

Typically £100,000–£500,000; up to £1m

Up to **£1m**

Investors in residence drive further start-up success

This year, we appointed two investors in residence to support the Ventures team: Jonathan Tobin, a partner at life science venture capital firm Brandon Capital, and Genghis Lloyd-Harris, a senior advisor at life sciences investment firm, Abingworth. Jonathan and Genghis also joined the Investment Committee for our Seed Fund.

Jonathan and Genghis bring a wealth of venture capital experience to the Ventures team, helping grow the number and quality of the companies the Seed Fund supports – from scouting for opportunities to scrutinising the selection process for funding and building networks of other experts to support new company development.

"Our Seed Fund is here in good times and bad times, willing to stand by the academics who are innovating and trying to get their products through to the clinic."

Genghis Lloyd-Harris, Investor in Residence

"Everything that gets seeded, if it's successful, will need to raise larger amounts of money. Because Genghis and I know how investors think, we can help you secure that financing."

Jonathan Tobin, Investor in Residence

NK:IO raises £1.2m to advance pioneering NK therapy

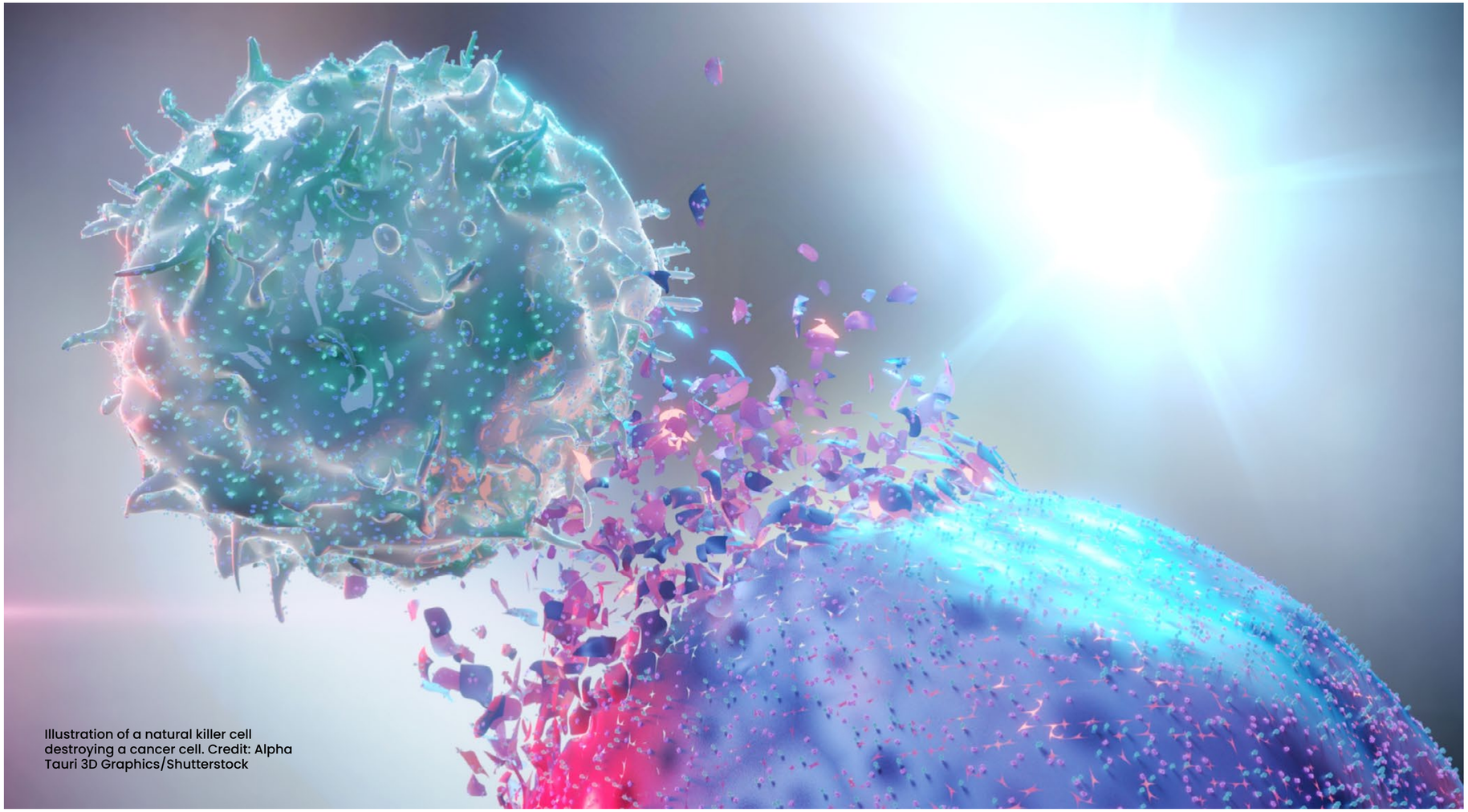


Illustration of a natural killer cell destroying a cancer cell. Credit: Alpha Tauri 3D Graphics/Shutterstock

Harnessing the ability of natural killer (NK) cells to recognise and kill tumours represents a major opportunity in cancer immunotherapy. However, conventional expansion methods limit the numbers and potency of NK cells, making the process non-industrialisable.

NK:IO's co-founders revealed fundamental mechanisms in NK cell development, leading to an industrial-scale protocol for NK cell manufacture using umbilical cord blood stem cells. From these discoveries, NK:IO is developing novel therapeutic candidates targeting hard-to-treat solid tumours, such as ovarian cancer.

In July 2023, we led a new £1.2m investment round in NK:IO. The investment will drive NK:IO's cell therapy candidates through full pre-clinical testing.

"Our potentially transformational approach could deliver an off-the-shelf product, at a fraction of the cost of other T-cell therapies."

Hugh JM Brady, Co-founder and Chief Scientific Officer, NK:IO

£1.86m raised to advance a Trojan horse for immunotherapies

Neobe Therapeutics was founded in 2021 from a venture creation alliance between Deep Science Ventures and Cancer Research Horizons established to help founder-type scientists build high-impact ventures in oncology.

The Neobe team has built a synthetic biology platform to genetically engineer microbial strains that could break down the protective barriers in solid tumours that prevent immunotherapies from working.

Immunotherapies, which harness the immune system to fight cancer, have transformed outcomes for people with some types of cancer, like blood cancers and melanoma. But in around 80% of people with solid tumours, immunotherapy is not effective, in part because the protective barrier keeps both the immune cells and the immunotherapy drugs out.

By producing a payload specifically at the site of the cancer to break the barrier down, Neobe hopes its bacterial Trojan horses could avoid harm to healthy tissue while significantly increasing the number of patients benefitting from immunotherapies.

It's an innovative approach – and one that this year helped them raise £1.86m to advance their synthetic biology platform, funding rigorous pre-clinical safety and efficacy studies and initial regulatory validation to bring their research closer to patients.

We've been working with Neobe since the start, investing pre-seed capital at inception and participating in its latest financing round in the 2023/24 financial year.

"Cancer Research Horizons' trust and support truly validates our innovative approach to enabling safer, more effective immunotherapies for people with cancer."

Pedro Correa de Sampaio, Co-founder and Chief Executive Officer, Neobe Therapeutics

NEOBE THERAPEUTICS

Neobe co-founders Pedro Correa de Sampaio and Annelise Soulier

Early clinical trial shows promise for people with treatment-resistant tumours

Up to 90% of cancer deaths are linked to treatment-resistance – when a tumour evolves and no longer responds to drugs that worked before.

Some cancers do this via network of cellular reactions called the DNA damage response (DDR) pathway. Several DDR drugs are now targeting this Achilles' heel in the clinic, including cisplatin and olaparib, which were born from Cancer Research UK-funded work.

We formed Artios Pharma with SV Life Sciences in 2016 and supported it to build on this rapidly growing field with a pipeline of drugs that target different parts of the DDR pathway, so we can stay one step ahead of tumour evolution. The group has now raised over £200m in investment, highlighting a real interest from investors in targeting DDR pathways.

In October, Artios announced that its ATR inhibitor, ART0380, is safe and well-tolerated in people with advanced solid cancers. Some people taking part in the Phase 1 clinical trial (**NCT04657068**) also saw their tumours shrink.

The drug entered the Phase 2 part of the ongoing Phase 1/2 trial in February. The first of three solid tumour expansion arms in this phase is focusing on ovarian cancer, for which drug resistance is a bottleneck in driving progress – just 35% of people survive their diagnosis beyond 10 years. Drugs like ART0380, and others in Artios's pipeline, could be transformative for people with ovarian cancer and other DDR-driven cancers.

Discovering **new medicines**

Our world-class drug discovery capabilities bridge the gap between academia and industry.

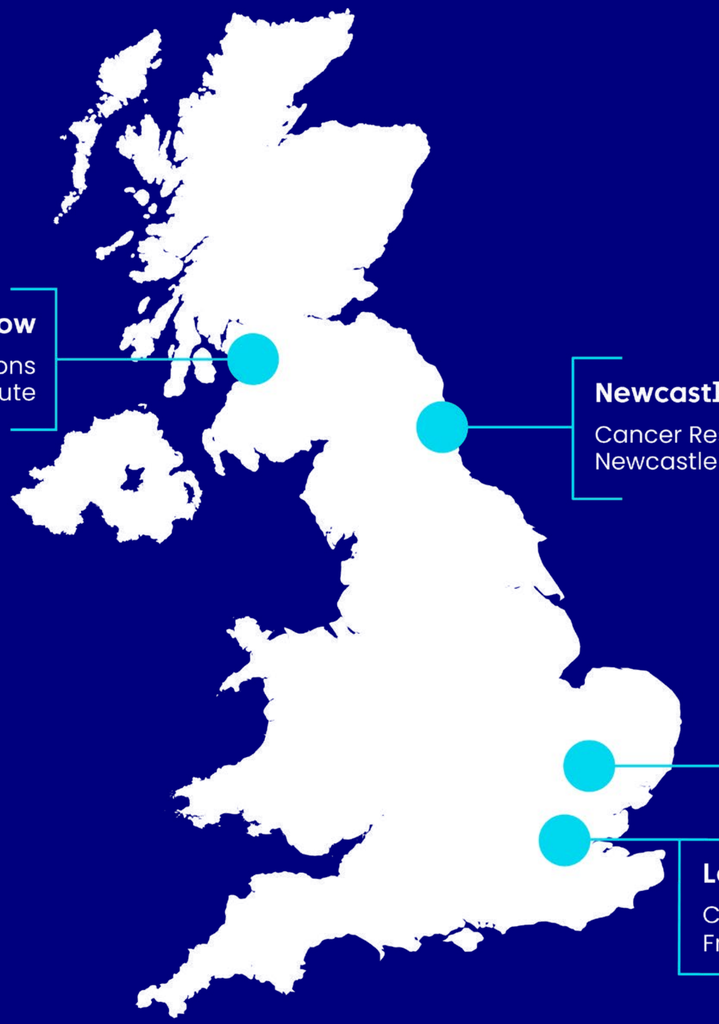
A fresh approach to drug discovery

Some promising academic breakthroughs never reach translation, often because they're too risky for industry to take on straight out of the lab. Our Therapeutic Innovation division unites more than 200 drug discovery scientists across six sites, all committed to de-risking those breakthroughs and accelerating the early translation of new drugs and tools.

We are enabled for both small molecule and antibody drug discovery, with capabilities from target identification and validation, through hit finding, lead identification and optimisation, to the identification of drug candidates for onward regulatory development.

These candidates undergo onward development either with the private sector or through Cancer Research UK's Centre for Drug Development (read more on page 35).

Our drug discovery sites



Glasgow
Cancer Research Horizons
Scotland Institute

Newcastle
Cancer Research Horizons
Newcastle University

Cambridge
Cancer Research Horizons
Babraham Research Campus

Cancer Research Horizons
Granta Park Science Park

Cancer Research Horizons–AstraZeneca
Functional Genomics Centre
Cambridge Biomedical Campus

London
Cancer Research Horizons
Francis Crick Institute

Our year in numbers

Actively collaborating with
37
PIs in our network

8
current commercial partnerships

Five years of the Functional Genomics Centre

We launched the Functional Genomics Centre (FGC) in 2019, in partnership with AstraZeneca, to democratise access to cutting-edge CRISPR technology and identify and validate new drug targets that could change the cancer landscape.

Users of the centre have access to state-of-the-art capabilities including pooled single guide RNA screening, bioinformatics and data analysis, and an active technology development programme.

The industry–academic partnership enables both partners to work together to solve some of the most important problems in cancer today.

"The FGC has provided access to CRISPR screening capabilities that we would not have been able to replicate independently. The team worked in a very collaborative way, and we were able to have enjoyable scientific and technical discussions during the process."

Ivan Ahel, Oxford University

Promising clinical trial results for previously ‘undruggable’ target

The p53 protein is inactive or faulty in at least 50% of cancers, making it a prime target for drug development. It has long been considered undruggable, in part because reactivating it is incredibly challenging.

Could an indirect approach give us a new way forward?

In partnership with Astex Pharmaceuticals and Newcastle University, we’ve discovered and developed ASTX295, a small molecule drug that reactivates p53 by preventing its interaction with some of the molecules that control it.

This year, we showed that ASTX295 can successfully restore the function of p53 in people with advanced solid cancers. Early clinical trial results also show the drug is safe and tolerated (**NCT03975387**).

De-risked, validated and bolstered by these encouraging results, ASTX295 is now ready to enter the next stage of clinical testing and development.

This is our longest-running strategic partnership, established in 2004, with several drug discovery projects ongoing.

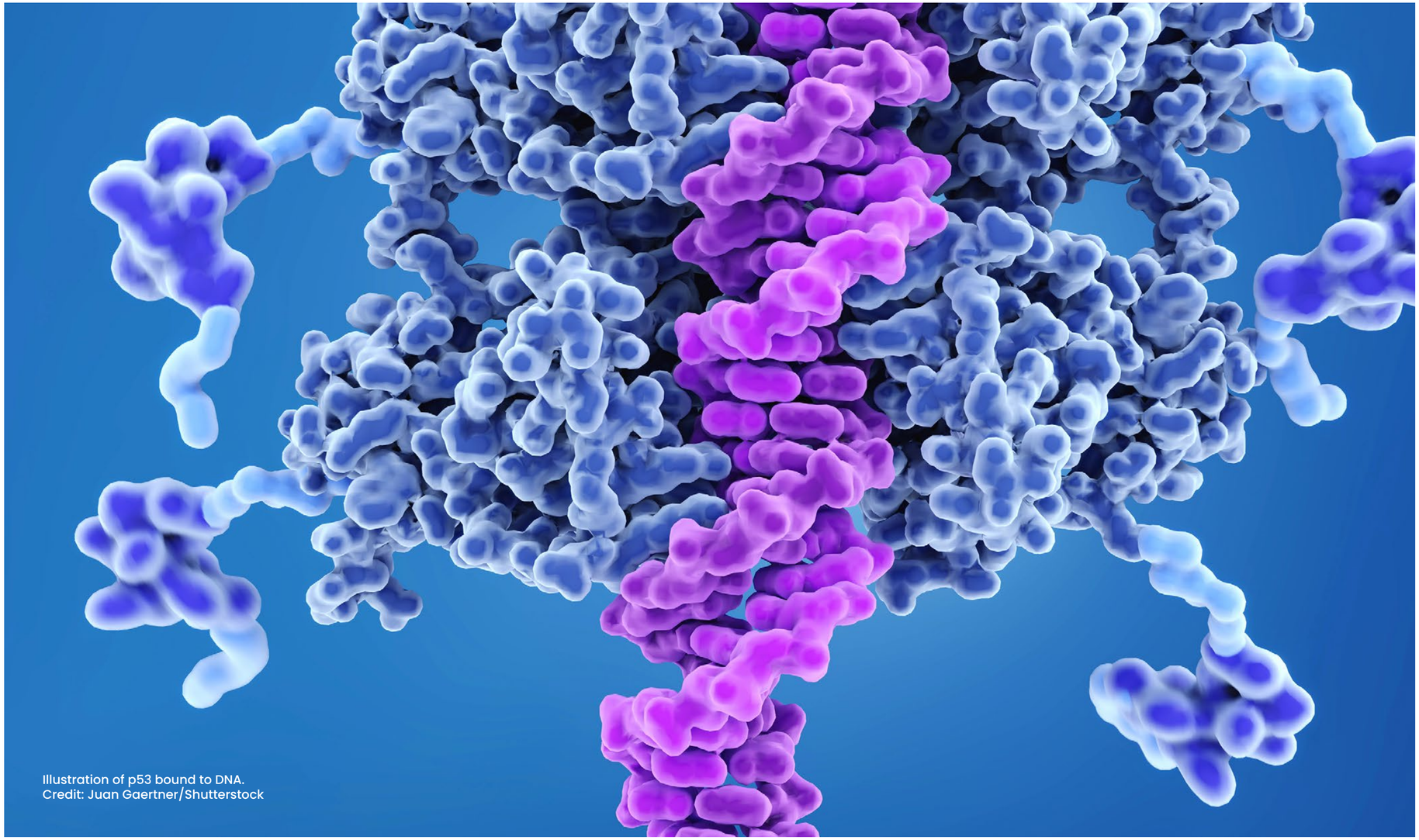


Illustration of p53 bound to DNA.
Credit: Juan Gaertner/Shutterstock

CANCER RESEARCH HORIZONS | astex pharmaceuticals

Therapeutic Catalyst Awards

Our Therapeutic Catalyst Awards support researchers to explore the translational prospects of their science – the first step in taking their idea from bench to bedside with us a single funder and partner.

The awards launched in 2021, providing up to £250,000 from Cancer Research UK and the opportunity to work with our Therapeutic Innovation labs over 12–18 months to validate and de-risk novel targets.

We run three rounds of funding per year. We supported four new projects in 2023/24, focused on early drug discovery for leukaemia, lymphoma, liver and bowel cancers.

With their funding, Victoria Cowling and her team at the Cancer Research UK Scotland Institute are examining the role DNA and its messaging system, RNA, play in bowel cancer development. Dysregulation of RNA can drive tumour growth and metastasis.

The team is exploring whether it's possible to target this messaging system and tackle the very early stages of bowel cancer development. Their research could shed new light on how bowel cancer begins, potentially leading to new interventions for the 44,000 people diagnosed with the disease in the UK each year.

"This is an exciting, emerging area of biology not currently being investigated. If we can find treatments which stop cancer at this stage, at its very beginnings, then it would make it difficult for the cancer to adapt and return."

Victoria Cowling, Cancer Research UK Scotland Institute

Appointing our Therapeutic Innovation board

In 2023, Christoph Lengauer became the first chair of the Therapeutic Innovation board and helped recruit new members Carlos Garcia-Echeverria, Katharina Kreymborg and Karen Lackey.

The new board members' experience across academia and the biopharma industry brings a fresh perspective to reshape our drug discovery strategy.

We will focus on generating a portfolio of projects, through engagement with our world-class network of academic science, to yield a steady flow of small molecule and antibody-based candidates for further drug development.

The new approach will prioritise resources and partnerships to accelerate the translation of the most promising approaches into new therapies for people with cancer.

Christoph Lengauer
co-founded several successful biotech companies before co-founding Curie.Bio in 2022 as a new model for venture capital.

Carlos Garcia-Echeverria
has led drug discovery and development teams across the biopharma industry, including at EQRx, Sanofi and Novartis.

Katharina Kreymborg
is senior vice president of the CSO Partner Team at Curie.Bio, a founder-focused venture firm and therapeutics accelerator.

Karen Lackey
is the chief executive officer of X-Chem, which offers services and products to accelerate small molecule drug discovery.

"Taking cutting-edge innovations from the lab and translating them into effective treatments for patients is super difficult. I am looking forward to assisting the Cancer Research Horizons team with the acceleration of the discovery, development and commercialisation of new therapeutics."

Christoph Lengauer

Developing **medicines**

As one of the world's only charity-funded drug development facilities, Cancer Research UK's Centre for Drug Development is uniquely focused on patient benefit.

The partner of choice for clinical trials

Cancer Research UK's Centre for Drug Development (CDD) turns today's science into tomorrow's medicines, through its world-class infrastructure, expertise in a broad range of agent types and strong track record in running clinical trials up to Phase 2a.

Industry partners work with the CDD via our clinical development partnerships to take their assets through the clinic, sharing both the risks and the rewards. We also form alliances with like-minded organisations to bolster the CDD's resources, provide access to drugs and fuel our ambitions to usher new therapeutics closer to the clinic.

We're particularly interested in first-in-class and first-in-human projects, and those that may have stalled because traditional drug development pipelines are unable to take them further.

CANCER RESEARCH UK | Centre for Drug Development

The CDD's year in numbers

4
new trials or treatment arms opened

72
patients treated

4
Clinical Trial Authorisations submitted

The emerging class of drug that nearly wasn't

In 2008, two scientists pitched an idea for a new class of drug to the CDD. Now, the world's first "allergic reaction antibody" drug has shown promise in early clinical trials.

James Spicer and Sophia Karagiannis approached the CDD with a bold idea: could IgE antibodies, which normally mediate allergic reactions, be used to treat cancer? Their idea was risky. Would giving someone these antibodies trigger a huge, potentially fatal, allergic reaction?

This was enough to put industry partners off, along with the prospective cost of establishing a process to safely manufacture enough antibodies for clinical trials.

But the CDD saw the potential for impact in this entirely new type of drug. While all other immunotherapies are IgG antibodies, which usually protect us against infection, this new IgE approach could trigger a powerful anti-cancer immune response at very low dose levels.

And so MOv18 was born: the world's first IgE antibody.

After many years of drug development, establishing new manufacturing processes at the CDD's in-house facilities and rigorous safety testing, MOv18 entered a Phase 1 clinical trial (**NCT02546921**).

Trial results were announced in 2023, showing that IgE antibodies can be given safely to people with advanced gynaecological cancers. One patient experienced clear shrinking in the size of their tumour, at a remarkably low dose of the drug.

With the drug's safety established, biotechnology company Epsilogen has raised $40m to drive MOv18, and the wider IgE field, through the clinic.

"I'm certain we wouldn't be here today if it wasn't for Cancer Research UK and the CDD supporting all the wonderful work we've done together."

Sophia Karagiannis, Professor of Translational Cancer Immunology and Immunotherapy at King's College London

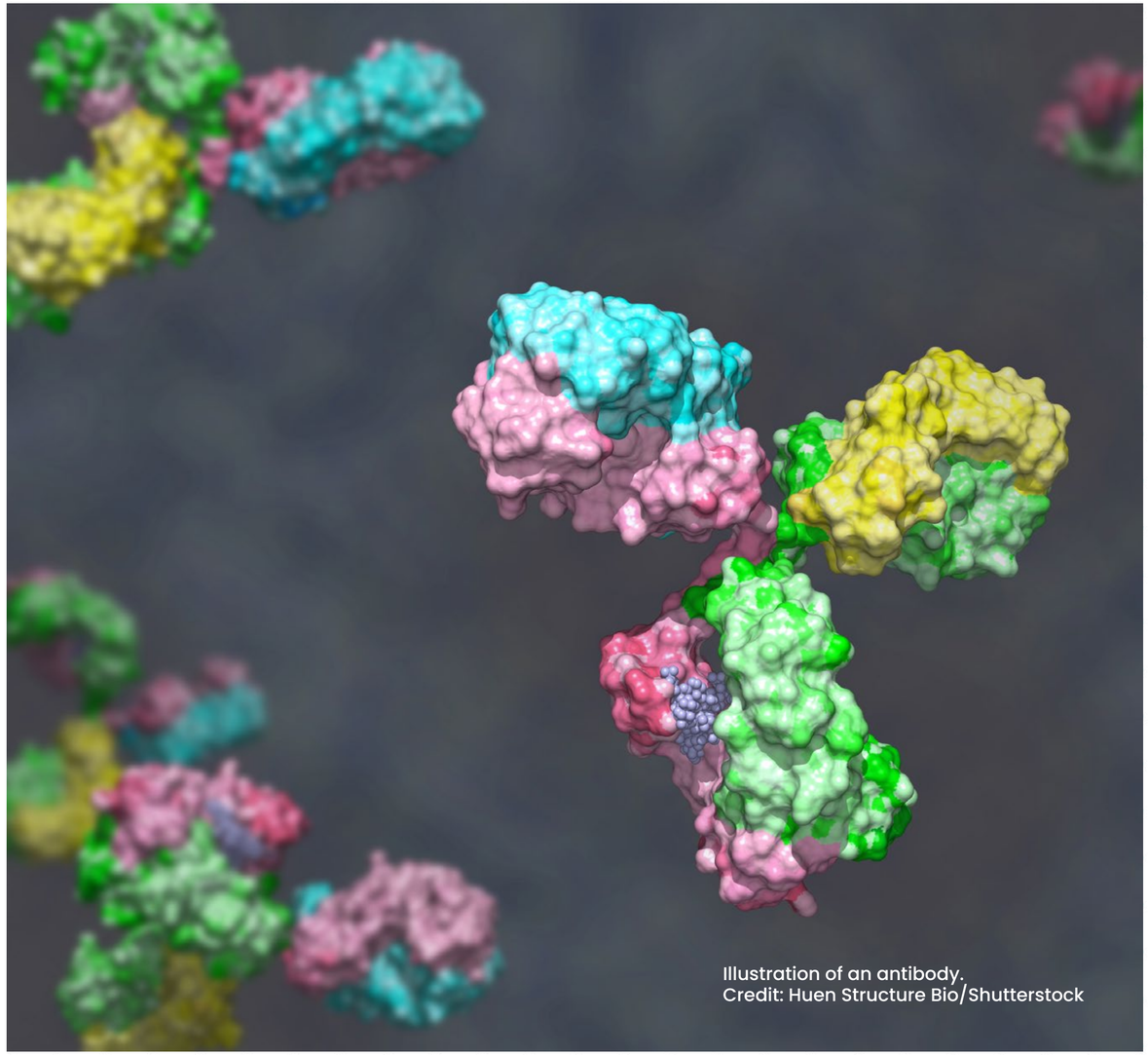


Illustration of an antibody.
Credit: Huen Structure Bio/Shutterstock

The UK's first national precision medicine trial for rare and childhood cancers

Personalised medicine has brought effective treatments for people with common cancers driven by certain genetic alterations.

It's likely that many people with rare cancers would also benefit from these treatments, but we understand relatively little about these conditions.

That's why the CDD is managing **DETERMINE**: the first multi-drug precision medicine trial for rare cancers (**NCT05722886**). Patients are tested for specific genetic alterations and, where possible, matched to drugs that have already been approved for other cancers.

We partnered with Roche and Novartis to provide access to their drugs for the trial, which is led by the University of Manchester and run in collaboration with the University of Birmingham, the Royal Marsden NHS Foundation Trust and the Christie NHS Foundation Trust. We are also working with partners across Europe in the PRIME-ROSE consortium to link with similar studies and pool our collective data. The CDD's collaborative approach, combined with its infrastructure and partners, put it in prime position to run complex trials like DETERMINE.

DETERMINE is a truly national platform trial, with 21 sites now open across all four nations in the UK.

The study is already providing access to potentially life-prolonging treatments and enabling the collection of valuable patient data. By enhancing access to drugs, we hope the trial will improve the lives of many more people with rare cancers in the future.

The power of partnership: going global with clinical trials

Cancer is a global challenge and it's more important than ever to collaborate across borders. This year, we expanded our international reach, partnering with two leading cancer research charities: the KWF Dutch Cancer Society and the Norwegian Cancer Society.

Both bring expertise and resources that complement the CDD's and will enable trials to happen that otherwise wouldn't be possible – opening new treatment options for patients in the UK and beyond.

"We have long been concerned that it takes far too long for life-saving innovations to reach patients," says Ingrid Stenstadvold Ross, General Secretary of the Norwegian Cancer Society. "Partnering with the Centre for Drug Development gives us a unique opportunity to make a real difference."

Our first trial with KWF will test a radioactive imaging agent for detecting relapsed neuroblastoma, a rare cancer that mostly affects young children. An early phase Cancer Research UK-funded study had shown promising results, but the loss of nuclear manufacturing capabilities in the UK meant the trial couldn't progress further.

Thanks to funding from KWF and the Netherlands' wealth of nuclear medicine expertise, plus support from Radionuclides for Health UK to resolve manufacture challenges, we have been able to reinvigorate the study – and bring this agent closer to the children who could benefit from it.

NORWEGIAN CANCER SOCIETY

KWF

Sarah Mellor, CDD, presenting on the KWF partnership during the Dutch Government's innovation mission to the UK

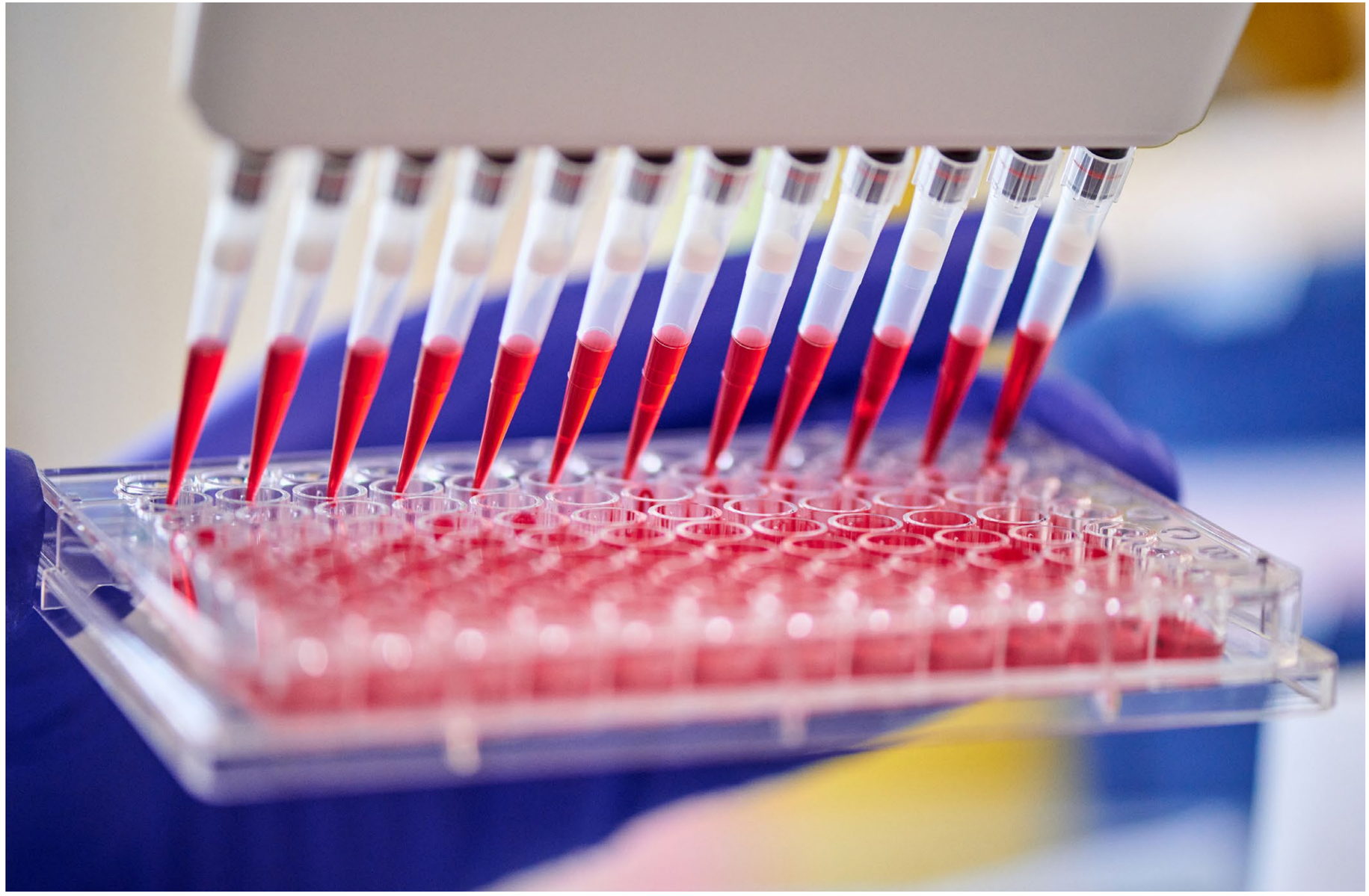
On the **horizon**

We're excited to evolve and grow our strategic initiatives over the coming years, supporting the translation of promising research into new innovations for patients.

A roadmap to commercialise biomarkers for early detection

Earlier detection and diagnosis offer the greatest potential for transforming cancer patient outcomes – yet only half of all cancers in England are diagnosed at an early stage, when treatment is more likely to be successful.

A blocker to progress is the lack of a holistic view on how to navigate the complexities of translation and commercialisation of novel technologies from discovery through to clinical adoption. We're building a Diagnostics Development Framework, a standardised route map to support our scientists to harness the power of their early detection research and bring new biomarkers and diagnostic technologies closer to benefitting cancer patients.



A new consortium for children's and young people's cancer treatments

Cancer remains a leading cause of death by disease for children and young people in both the US and the UK. Limited investment into treatments designed for the unique biology of these cancers continues to thwart progress, meaning patients must instead rely on therapies repurposed from adult cancers.

We are partnering with LifeArc to create C-Further, an international consortium focused on the discovery and development of bespoke treatments for children's and young people's cancers.

C-Further will offer researchers with promising therapeutic targets a package of support to help them progress their projects, including funding, access to cutting-edge drug discovery facilities, and expert support.

We will start this pioneering initiative with an initial investment of £28m. It's clear that our mission cannot be realised alone. We will also be looking for like-minded individuals and organisations who can offer their expertise or investment to propel innovations along the drug development pathway.

"Rising to the challenge of childhood cancer will require a fundamental change in the way children's and young people's cancer drugs are discovered, developed and brought to market. C-Further is committed to driving that change."

Tony Hickson, Chief Business Officer, Cancer Research Horizons

CANCER RESEARCH HORIZONS | LifeArc

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Contact us

Looking to commercialise your ideas? Tell us about your exciting projects and we can help you develop new products.

Help us bring forward the day when all cancers are conquered.

cancerresearchhorizons.com

FURTHER FASTER TOGETHER

We are beating cancer