



CANCER
RESEARCH
UK

MANCHESTER
CENTRE

CANCER RESEARCH UK MANCHESTER CENTRE

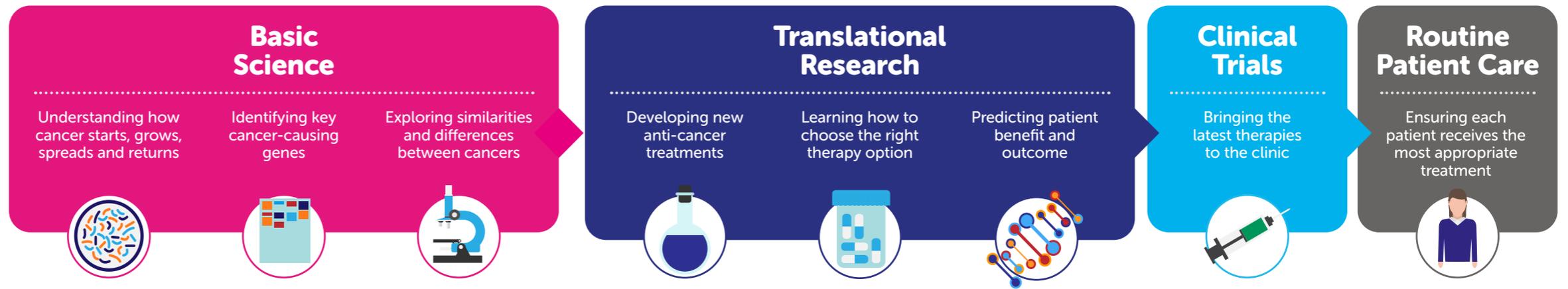


The Cancer Research UK Manchester Centre has a unique opportunity to implement a precision medicine approach to treatment across the full spectrum of cancer research, from the lab to treatment. Research we undertake will go on to dramatically improve patient outcomes, now and for years in the future.

Robert Bristow - Director of the Cancer Research UK Manchester Centre

- 04** Who are we?
- 08** Our Vision
- 10** Manchester
- 12** Case Study: RadNet
- 14** A Unique Environment
- 18** Research Strategy
- 20** Infrastructure and Facilities
- 22** Case Study: TARGET
- 24** Training and Development
- 26** Engagement and Inclusion
- 28** Case Study: ACED

Established by Cancer Research UK (CRUK) in 2013, the Cancer Research UK Manchester Centre is a translational research centre that delivers world-leading research across twelve cross-cutting research themes and disease sites.



The CRUK Manchester Centre's vision is to deliver Cancer Precision for All: Uniting translational and clinical excellence to deliver a cancer free future. The Centre is led by Professor Robert Bristow with Professor Caroline Dive as Deputy Director. It helps to support activities in three core areas:

- 1) Accelerating translation of lab-based discoveries into the clinic
- 2) Improving access and efficiency of treatment for patients with cancer
- 3) Training the next-generation of world-leading cancer scientists

Our researchers have access to state-of-the-art facilities at The University of Manchester, including the Oglesby Cancer Research Building as well as the core-funded Cancer Research UK Manchester Institute (CRUK MI), and unparalleled access to world-leading cancer treatment facilities at The Christie NHS Foundation Trust and other NHS Facilities.

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We're building a brand new world-leading cancer research facility, right in the heart of Manchester to enable the co-location of clinical and basic research, and help us to re-write cancer

Artist's impression



Our vision is to transform the clinical care of cancer patients by developing and implementing an integrated personalised medicine strategy.

This vision can only be realised in Manchester.

By leveraging our comprehensive integration of basic and translational science, we will:

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1. Ensure that treatment decisions are guided by the characteristics of an individual patient's tumour
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2. Take a leading role in delivering experimental medicine trials
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3. Optimise how radiotherapy is delivered, including combination approaches and proton therapy
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4. Detect cancer in its earliest form when treatment is most likely to have its greatest effect
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5. Work to harness the body's own defence mechanisms to fight tumours
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6. Build a biobank that drives future research into common and rare cancers

Cancer Research UK is the world's largest independent funder of cancer research and is the world's leading cancer charity dedicated to saving lives through research that has already seen survival rates in the UK double in the last 40 years.

Alongside the CRUK Manchester Centre, Cancer Research UK has invested resources into various other initiatives and organisations across the city, leveraging decades of expertise in a number of different research fields.

Cancer Research UK Manchester Institute

Is a leading research institute within The University of Manchester. One of only four core-funded CRUK institutes, the CRUK MI supports over 300 scientific members of staff and covers the whole spectrum of cancer research, from the cellular basis of cancer and bioinformatic analysis to drug discovery and therapeutic development.

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Cancer Research UK has invested resources into various other initiatives and organisations across the city



CRUK MI Cancer Biomarkers Centre

Reflecting the focus on biomarker science, the CRUK MI CBC is focused on the discovery, translation and clinical evaluation of biomarkers at all stages of the cancer 'journey' from pre-disposition to early detection through to clinical care.

CRUK Lung Cancer Centre of Excellence

In collaboration with UCL, is making significant advances in the field of lung cancer centred on early detection and treatment of lung cancer.

CRUK RadNet Manchester

Is a Radiation Research Unit, in collaboration with The Christie, that is developing an integrated world-leading radiation oncology programme as part of a UK-wide network of centres of excellence.

The International Alliance for Cancer Early Detection

Manchester is a founding partner of an international partnership that is tackling the complex issue of early detection, bringing together world-leading scientists and training future generations.

CRUK Accelerator Awards

Are enabling several translational research projects in Manchester which bring together cross-institutional and international teams to produce tools and resources that will transform the research landscape.





Exemplifying our collective expertise in radiotherapy, Manchester has been named as a Radiation Research Unit as part of Cancer Research UK's Radiation Network.

In collaboration with The Christie, Cancer Research UK RadNet Manchester is developing a world-leading radiation oncology programme, working towards individualised physical and biological targeting based on the patient's own tumour and real-time response to radiotherapy treatments.

Cancer Research UK RadNet Manchester aims to drive innovative translational science into practice-changing cancer care. To achieve this, research will focus on three distinct research areas:

- 1) Developing our understanding of immunotherapy and radiotherapy combinations
- 2) How to treat patients with other diseases in addition to cancer and personalise radiotherapy
- 3) Understanding the tumour microenvironment and genomics of cells before, during and after radiotherapy

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In collaboration with The Christie, Cancer Research UK RadNet Manchester is developing a world-leading radiation oncology programme

The Cancer Research UK Manchester Centre is uniquely placed to be at the vanguard of delivering personalised cancer research. We work closely with institutions across the city to achieve our vision of providing personalised patient treatment.

The University of Manchester

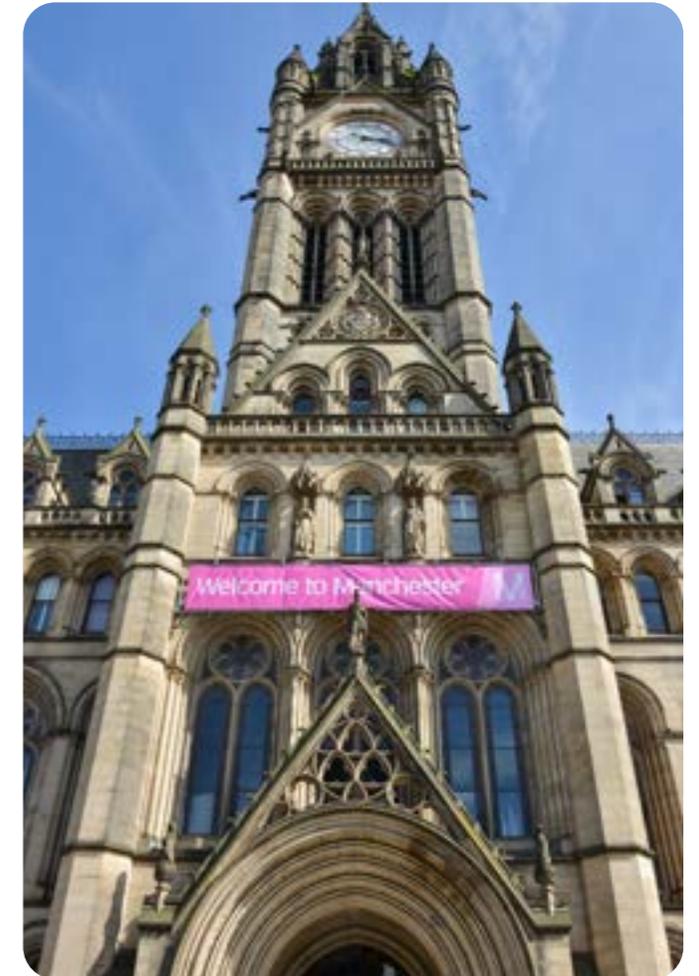
Is a powerhouse of innovation, and is one of the largest single site universities in the UK, with a rich heritage in cancer research. Cancer is also one of the university's five 'Research Beacons' exemplifying how pioneering discoveries, interdisciplinary collaboration and cross-sector partnerships will influence clinical research.

The Christie NHS Foundation Trust

Specialises in cancer treatment, research and education and is the largest cancer centre in Europe. As well as treating over 19,000 patients a year from across the UK, its experts have been pioneering breakthroughs in cancer research for over 100 years.

The Manchester Cancer Research Centre (MCRC)

Was formed in 2006 as a partnership between the University of Manchester, Cancer Research UK and The Christie. This strategic partnership harnesses the power of basic and discovery research, connecting the wider scientific community, including the biological, chemical and physical sciences, and helps to drive this research into the clinic.



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Our researchers have access to state-of-the-art facilities at The University of Manchester, including the Oglesby Cancer Research Building as well as the core-funded Cancer Research UK Manchester Institute

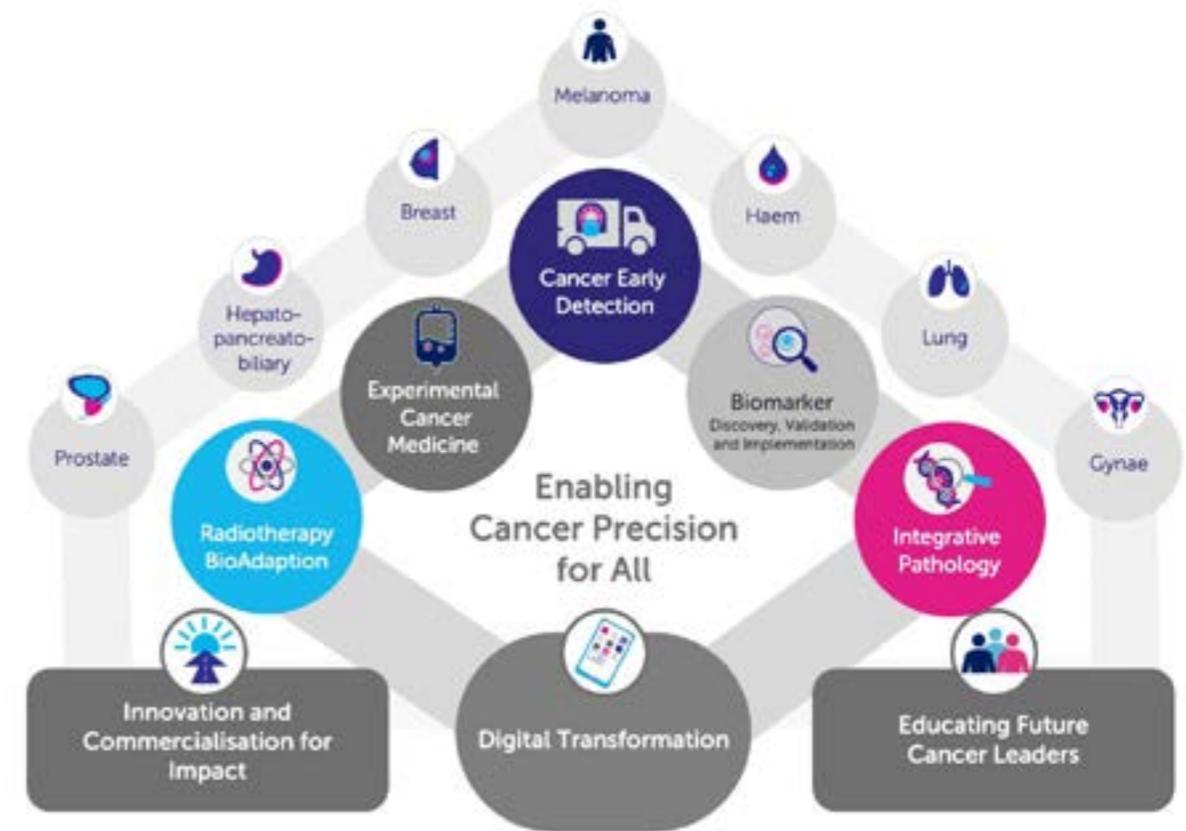


Oglesby Cancer Research Building

Our research is separated into five closely integrated, multidisciplinary research themes involving a diverse team of scientists spanning many academic fields.

Research is prioritised in seven key tumour-specific areas, with expertise and critical mass building in a number of others.

In these areas, we employ our expertise to understand, diagnose, monitor and treat tumours throughout the various cancer stages.



Our researchers access state-of-the-art facilities from various partners to enable the development of world-leading research.

Cancer Research UK Manchester Institute

As well as being home to world-leading research groups, the CRUK MI also hosts a broad range of cutting-edge laboratory facilities, including advanced imaging, next-generation sequencing, automated histological analysis, cell sorting, and gene editing. The Institute also provides access to in vivo facilities supporting preclinical studies and a High Performance Computing cluster and data storage for scientific computing.



Proton Beam therapy Centre

The Christie is home to the first NHS high-energy proton beam therapy centre in the UK, offering three rooms dedicated to clinical treatment, alongside a dedicated research room

MR-Linac

Combining high-field strength MR imaging with a linear accelerator in a single machine, the MR-Linac enables real-time imaging during treatment to more accurately deliver radiotherapy beam to tumours.

NIHR Manchester Clinical Research Facility

Provides the space and expertise needed to offer more patients the chance to take part in clinical trials, the NIHR Manchester CRF supports adult and children's studies across a diverse range of clinical areas.

Early Phase Clinical Trials

The Experimental Cancer Medicine Centre housed at The Christie is one of the largest recruiting centres to early phase clinical trials in Europe, tailoring treatment and maximising benefit to improve cancer patient health outcomes.



TARGET is a flagship precision medicine study that aims to develop and apply a simple blood test (liquid biopsy) as an alternative to a traditional biopsy.

By identifying circulating tumour DNA in blood, researchers can undertake a detailed genetic analysis to help match patients to the right trial and treatment.

The study has had two major impacts. First, it has enabled the timely implementation of infrastructure including establishing bioinformatic platforms, and the Manchester Molecular Tumour Board, that examines the results of individual's biopsy results to match patients to clinical trials. Secondly, based on genetic abnormalities detected in blood samples, patients have been successfully matched to clinical trials with further recruitment ongoing.

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The TARGET Trial demonstrates the feasibility of identifying genetic faults underpinning a patient's cancer from a blood test. This raises the hope of matching more patients to a specific targeted clinical trial with a better chance of benefit.

Dr Matthew Krebs
Senior author of publication
Nature Medicine, 2019, 25,
738-743

As a world-leading hub of cancer research, we train and develop the future leaders in cancer research.

Our approach is underpinned by four key principles that help us to attract high-calibre scientists:

- Providing students with high-quality projects and a cutting-edge lab environment
- Maximising the Manchester research environment
- Ensuring schemes are the beginning of a career pathway
- Including research outside traditional cancer science

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Our new MB-PhD programme will see students intercalated onto a PhD during their medical degree

We provide opportunities for ambitious candidates to undertake research training and development at all career stages, from postgraduate through to more experienced academic positions.

Our Clinical Research Training Fellowships and Non-Clinical PhD Studentships are tailored for candidates with clinical and non-clinical backgrounds, that fit within our overall strategy to translate research into patient benefit.

As part of our Clinical Academic Training Award, our new MB-PhD programme will see students intercalated onto a PhD during their medical degree, gaining insight on the key aspects of both clinical and academic research.

Our Early Career Development Scheme is tailored to those who are building their research reputation, and provides support and mentoring in preparation for prestigious fellowship applications.



Engagement and Inclusion

We are committed to increasing the knowledge and understanding of our research amongst our supporters and the general public, and recognise the importance of involving both patients and the public in our work.



To support this vision, we work with partners from across Manchester to engage with the right audience to share the knowledge of our research.

With the help of our researchers and colleagues from Cancer Research UK, the NIHR Manchester and University of Manchester, we run inspiring laboratory tours and open days within the Cancer Research UK laboratories in Manchester, and work to engage with communities at other events throughout the year.

We offer patients and members of the public opportunities to get involved and shape the future direction of our research. We aim to increase the diversity of our engaged communities in an effort to realise the need for truly personalised medicine.

Involvement and engagement are embedded in our culture and we are an exemplar across the Cancer Research UK network.

ACED

INTERNATIONAL ALLIANCE FOR
CANCER EARLY DETECTION

TRANSFORMING
CANCER SURVIVAL
THROUGH EARLY
DETECTION



Demonstrating our commitment to detecting cancer sooner, Manchester has been named a founding member of the International Alliance for Cancer Early Detection (ACED).

This Alliance represents the partnership between Cancer Research UK, Canary Centre at Stanford, University of Cambridge, OHSU Knight Cancer Institute, UCL and The University of Manchester.

ACED aims to bring novel screening programmes to the Greater Manchester population in breast and lung disease sites, identifying those most at risk and delivering new screening technologies to identify cancer sooner. In addition, researchers will investigate the fundamental biology underpinning how cancer develops.

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ACED aims to bring novel screening programmes to the Greater Manchester population in breast and lung disease sites





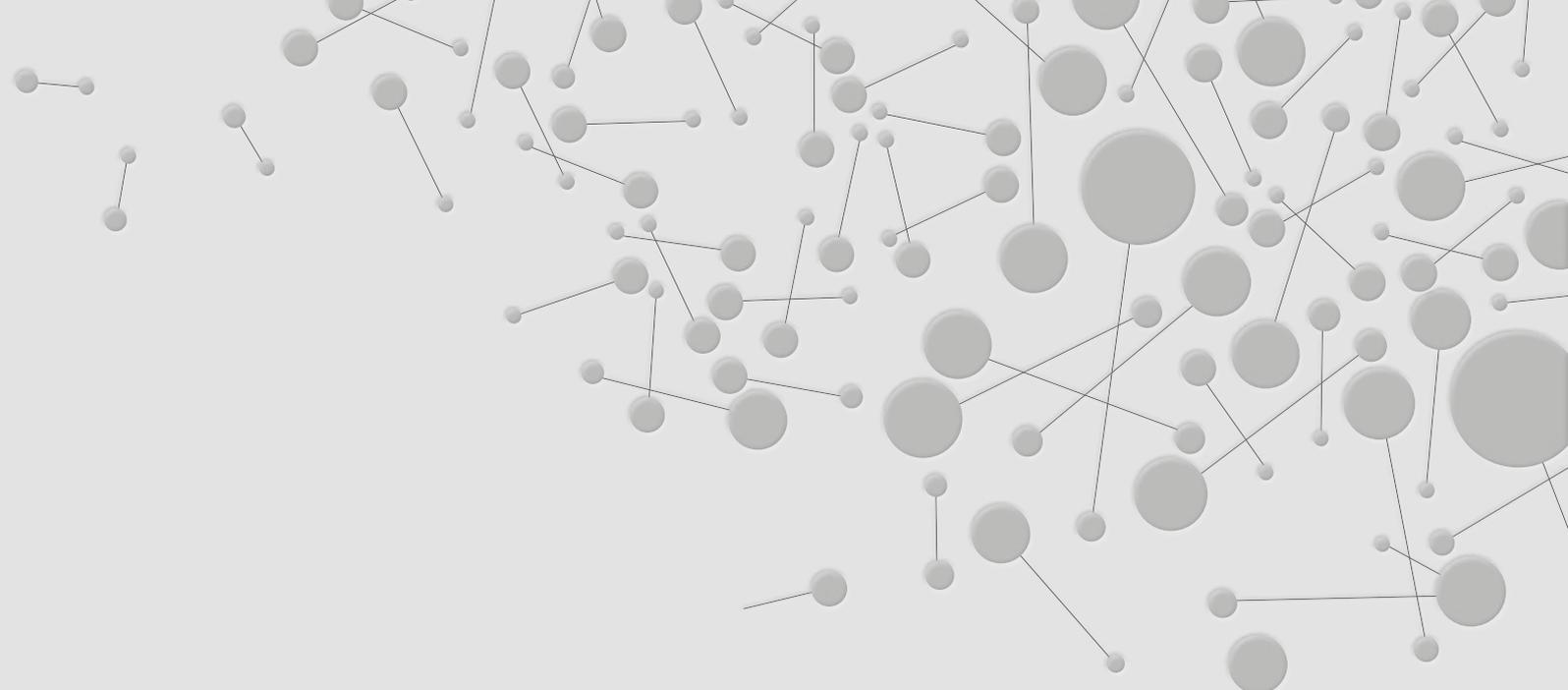
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The Cancer Research UK Manchester Centre is uniquely placed to be at the vanguard of delivering personalised cancer research.

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The Cancer Research UK Manchester Centre is ideally placed to bring a multidisciplinary approach to cancer research. The Centre benefits from the rich ecosystem of cancer research excellence in Manchester from core infrastructure at the CRUK Manchester Institute to clinical facilities at The Christie.

Caroline Dive - Deputy Director of the Cancer Research UK Manchester Centre



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