MANCHESTER
CANCER
RESEARCH
CENTRE

Become a **Global Cancer Leader**

Your Manchester Passport To Research Success

A PhD from the Manchester Cancer Research Centre provides you with the skills, experience and networking opportunities to lead cancer research in the future.

www.mcrc.manchester.ac.uk/study
Email: MCRCcomms@manchester.ac.uk
@MCRCnews
Manchester Cancer Research Centre
Manchester Cancer Research Centre

Welcome

The Manchester Cancer Research Centre (MCRC) is a unique research partnership between The University of Manchester, Cancer Research UK and The Christie NHS Foundation Trust.

Manchester has a rich history in cancer research and was the location for many pioneering discoveries including world-first discoveries, practice-changing clinical research and the development of new cancer research techniques and facilities.

Our location is still key to our success today. We're ideally placed to collaborate with world-leaders from across all our partner organisations, share access to Manchester's state-of-the-art facilities, and train the next generation of cancer scientists and researchers.

In this guide, we'll walk you through the different training programmes we provide and show you why Manchester is the ideal place to start the next phase of your cancer research academic career.

Professor Robert Bristow
Director, MCRC and Cancer Research UK Manchester Centre

Cancer research activity at The University of Manchester is overseen by the Division of Cancer Sciences in the Faculty of Biology, Medicine and Health.

The Division is one of the largest university cancer departments in the UK and covers all aspects of cancer research, from basic discovery science to clinical studies, molecular cell biology to radiotherapy, and a wide range of cancer types. Research in the Division is also highly collaborative, providing opportunities for training, to present your work, and to hear from world leading visiting speakers.

No matter if you already have a clear vision for your research, or are just starting to consider your options, we can help match you with a leading researcher to supervise your PhD. So please get in touch to discuss the range of exciting opportunities in Manchester.

Professor Stephen Taylor
Head of Division of Cancer Sciences

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Your Research **Environment**

Manchester is the ideal place to start the next phase of your cancer research academic career. Our PhDs are hosted through The University of Manchester and, if you choose to study with us, you'll join an exciting research community with students from over 170 countries.

You'll benefit directly from our unique research partnerships. Our research facilities at the Oglesby Cancer Research Building and Paterson Building are co-located with treatment facilities at The Christie NHS Foundation Trust. You'll also have access to our state-of-the-art facilities and buildings on The University of Manchester main campus. Our interconnected location directly allows discoveries in laboratories to be translated into the clinic and impact people affected by cancer.

Our research environment has been designed to provide high-quality education that encourages laboratory and clinical staff to collaborate. From cutting-edge laboratory facilities that offer everything needed to deliver novel research, to mentorship from world leading experts, Manchester is the place to be for cancer research.

Our partnership with The Christie NHS Foundation Trust, one of the largest single-site cancer hospitals in Europe, also creates the perfect environment for collaboration. You'll work alongside leading research and clinical staff, use biological samples from cancer patients for laboratory experiments, and access dedicated radiotherapy research rooms and proton beam therapy equipment.

As a researcher, you'll also benefit from the thriving research community at The University of Manchester, one of the largest and most successful research-intensive institutions in the UK. You'll study at the frontier of research and make your own contribution to our knowledge of cancer.

www.mcrc.manchester.ac.uk/why-manchester

The Oglesby Cancer Research Building (left) and Paterson Building (right) in Withington, Manchester.

300+
cancer trainees in Manchester

1 of 2
sites worldwide to offer high-energy proton beam therapy, SABR, and MR-Linac technologies

1000+
research papers published in 2022

150k
patient samples now collected at the MCRC Biobank for use in research projects

One of the biggest
clinical trial units in Europe

800+
clinical studies currently open at The Christie, involving more than 3,500 patients

Access state-of-the-art cancer facilities
including a world-leading National Biomarker Centre in the new Paterson Building

Cancer: **A Global Challenge**

Cancer accounted for nearly 10 million deaths worldwide in 2020. This stark reality means that cancer affects us all in some way.*

Through research, we can better understand the mechanisms of cancer, pioneer new treatments and ultimately give hope to people affected by this complex disease.

Cancer is a global challenge and requires collaborative solutions to decrease its impact on our patients.

By studying with us in Manchester, you'll learn from world-leading cancer research experts, have access to cutting-edge facilities and pioneer your own research discoveries, establishing yourself as a cancer leader to tackle these challenges.

Cancer is a **leading cause** of death worldwide

1 in 6 deaths worldwide are linked to cancer

200+ different types of cancer and each is diagnosed and treated in a particular way

Most common cancers are breast, lung, colon, rectal and prostate

30–50% of cancers are thought to be preventable by avoiding certain risk factors

* *World Health Organisation: www.who.int/news-room/fact-sheets/detail/cancer*

The **Facts**

By studying at The University of Manchester, you will access a world-leading university with a rich history in research and innovation and a proven record of delivering student and societal impact.

5th in the UK for research power, making The University of Manchester one of the best universities in Europe for academic and social impact†

1st in Europe for social and environmental impact‡

Top for employability The University of Manchester is amongst the top ten universities in the UK for employability, meaning our graduates are highly sought after by employers*

Cancer Beacon Cancer is one of The University of Manchester's five research beacons, with research dedicated to reducing the global cancer burden

The only UK site where a cancer hospital is connected to a research institute

* *Times Higher Education Global University Employability Ranking 2023*
† *Research Excellence Framework 2021*
‡ *Times Higher Education University Impact Rankings 2023*

Our PhD **Opportunities**

Manchester has a wide range of PhD opportunities across various cancer disciplines.

The core funded schemes that are available through the MCRC and our partners include:

- **Non-Clinical PhD Studentships**
- **Clinical Research Training Fellowships**
- **MB-PhDs**

A summary of all our funded opportunities is available on the Manchester Cancer Research Centre's Study website:
www.mcrc.manchester.ac.uk/study

If you are an international applicant with your own funding or have been awarded a scholarship, please email our Training Team to discuss your research interests and potential opportunities at:
MCRCTraining@manchester.ac.uk

Training at Manchester cornerstones

Manchester offers a flexible and diverse array of training, all with top quality standards across the following areas.

Environment

Enjoy access to cutting edge laboratories co-located with one of Europe's largest single site cancer treatment centres: The Christie NHS Foundation Trust, providing the ability to translate discoveries from the bench to the bedside.

Networking and Engagement

Collaborate with researchers and develop key research skills through our links with multiple international programmes across leading global cancer centres.

Support

Access to workshops, seminars and coaching, plus dedicated training officers at The University of Manchester, The Christie NHS Foundation Trust and CRUK Manchester Institute and Centre.

Mentorship

Learn under the supervision of clinical and scientific experts and gain career mentoring throughout your programme from global experts and peers.

A Bespoke Curriculum for Your Development

Manchester trainees will benefit from a bespoke curriculum of seminars and workshops that nurture secondary skills and provide key training in the following core areas:

- **Leadership**
- **Clinical Trials of the Future**
- **Commercialisation and Entrepreneurship**
- **Equality, Diversity, and Inclusivity**
- **Research in Healthcare Systems**
- **Health Data Sciences**

Student Life

Each year, we welcome some of the brightest, passionate and most curious students to start the next stage of their cancer research academic career with us in Manchester. Our students come from over 170 countries and bring with them a wealth of knowledge, experience and enthusiasm. Read our student story to see what studying in Manchester is like and why it draws students from across the world.

Hazim Al-Hazmi

My research focuses on understanding the underlying mechanisms of cancer progression, specifically looking at how cancer cells alter protein structure and how they function.

Understanding these changes could one day help us identify potential targets during radiotherapy and chemotherapy treatment.

Choosing Manchester for my PhD was an easy decision. I knew that Manchester would be the ideal place for me to learn and evolve as a cancer researcher. Not only does it offer diverse arts, sports and cultural experiences, the city has a global reputation as a biomedical research hub with a commitment to innovations in cancer biology. As a PhD student, I benefit from Manchester's rich research environment and have access to cutting-edge resources and opportunities to collaborate with world-class experts.

My ultimate goal is to apply my expertise to help address health challenges in Saudi Arabia while also contributing to the education and training of future researchers and healthcare professionals and passing on my knowledge and experience.

Hazim Al-Hazmi is a Non-Clinical PhD student, supervised Dr Christine Schmidt.

Charlotte Mellor

I am researching the proteins involved in apoptosis – the process of programmed cell death. Cells should be able to die when they become damaged but cancer cells are very good at avoiding death. That's why many cancer treatments try to force cancer cells to die.

I want to better understand how cell death occurs in human cells to help our understanding of why some patients may develop resistance to certain cancer drugs and to ultimately contribute to the design of better cancer drugs.

The best part of my PhD is that I feel like I'm making a small difference to the world. If there's just one thing I can find out that wasn't previously known, it's still a little mark on our understanding of cell biology that could benefit cancer patients in the future. I'm really passionate about mitochondrial apoptosis and it's a dream to spend every day investigating it further.

Charlotte Mellor is a Non-Clinical PhD student, supervised by Dr Andrew Gilmore.

Student Life

Jean Ling Tan

My PhD is researching ways to reverse chemotherapy resistance in ovarian cancer. I'm responsible for growing cancer cells, treating them with a combination of chemotherapy drugs and novel compounds, before examining how and why the cells die.

Ultimately, my research could lead to novel treatment combinations and the development of biomarkers – molecules that can be used to predict how well the body responds to a treatment – which help clinicians identify the most suitable drugs for each patient.

I chose to do an MB-PhD in Cancer Sciences as my goal is to become a clinician scientist and to combine my clinical practice with research. A PhD is a necessary step to achieve this.

The best part of my PhD is that I have access to state-of-the-art equipment to support my research. My project gives me the opportunity to study purified tumour fraction samples in our lab's biobank that have been derived from biopsy samples of patients being treated at The Christie NHS Foundation Trust. I find being part of the research landscape here in Manchester very inspiring.

Jean Ling Tan is an MB-PhD student, supervised by Professor Stephen Taylor.

Anthony Wilby

My research is focused on breast cancer prevention treatments. I'm using human biopsy samples and treating them with different drugs and analysing how the tissue reacts.

Ultimately my research could lead to the development of new therapeutic options and also help clinicians identify the optimal treatment for each patient with breast cancer.

One of the best things about studying a cancer-focused PhD in Manchester is the access to facilities and expertise. I have access to state-of-the-art labs and equipment in both the Oglesby Cancer Research Building and the Paterson Building. I can also easily connect and collaborate with clinicians at The Christie NHS Foundation Trust who often provide a useful, alternative viewpoint when I'm carrying out experiments as part of my research.

The core transferable skills that I'm developing during my PhD mean there are a range of potential career paths open for me to explore. One option I am keen to
pursue is to do a postdoc abroad to further my research skills whilst also experiencing a new culture.

Anthony Wilby is a Non-Clinical PhD student, supervised by Dr Hannah Harrison, Dr Sacha Howell and Dr Gillian Farnie.

Student Life

Mengying Wang

My PhD research project is exploring the link between diabetes, obesity, and cancer-related mortality in Chinese populations.

My project is highly data-driven and I'm analysing data from two large Chinese cohorts to understand the incidence rate of high-risk cancers that are associated with diabetes and obesity, such as breast and pancreatic cancer. Ultimately, my research findings could help healthcare professionals to personalise treatment plans for cancer patients with diabetes and put in place meaningful public health campaigns.

The University of Manchester has a great reputation in China and having the chance to experience a different culture and collaborate with world-leading researchers really drew me to Manchester and made me apply for my PhD project.

In the future, I would like to become a clinical doctor in China as with clinical medicine you keep learning your whole life, from patients, colleagues, and other researchers, which I find very appealing.

Mengying Wang is a Non-Clinical PhD student, supervised by Professor Andrew Renehan, and a recipient of the China Scholarship Council Innovation platform with Shanghai Jiao Tong University School of Medicine.

Our Alumni Community

From forming world-leading research groups to undertaking practice-changing clinical studies or launching cancer-focused start-ups, alumni from the Manchester Cancer Research Centre have accomplished incredible things.

Here are just a few examples of what some of our recent graduates have gone on to do.

Dr Connor Rogerson completed a Non-Clinical PhD in 2019 which explored the molecular mechanisms in oesophageal cancer progression. He is now a Senior Research Associate in the Department of Biochemistry at The University of Cambridge, UK, where he is working towards understanding the role of transcription factors in cancer development.

Dr Anna Maria Tsakiroglou graduated in 2021 with a Non-Clinical PhD. Her project focused on the development of a novel software platform to help automate cancer pattern recognition. Anna is now Senior Data Scientist at AstraZeneca where she is responsible for using AI and machine learning to find patterns in genomes.

Dr Niki Flaum completed a Clinical Research Training Fellowship in 2023 which focused on genetic predisposition to epithelial ovarian cancer. She is now an Academic Clinical Lecturer at The University of Manchester, researching early detection and risk prediction of breast cancer in young women, and is also completing training in medical oncology at The Christie NHS Foundation Trust.

Dr Ben Abbott completed a Non-Clinical PhD, looking at the relationship between prostate and bone cancer, in 2020. Ben is now Senior Editor at Communications Medicine, a medical journal that covers the entire spectrum of clinical and translational medicine, epidemiology and public health, and was recently the journal's Locum Chief Editor.

www.mcrc.manchester.ac.uk/alumni-stories

A Nexus of **Research Excellence**

When you join our research ecosystem, you will benefit from access to an interconnected network of impactful, collaborative and world-leading research centres across Manchester.

By linking with the various centres of excellence, institutes and teams, you will forge new connections and build your own network, share ideas, and collaborate beyond your chosen discipline to find common solutions to cancer's biggest challenges. Manchester is a leading force in cancer research.

Our many accolades include:

- The only UK site where a cancer hospital is connected to a research institute
- One of only four Cancer Research UK core-funded institutes
- One of seven Cancer Research UK Centres
- Home to both an NIHR-funded Clinical Research Facility and Biomedical Research Centre
- Home to an adult and paediatric Experimental Cancer Medicine Centre (ECMC)
- Member of ACED, an International Alliance for Cancer Early Detection
- Leading Cancer Research UK's Radiation Research Network (RadNet)

CANCER RESEARCH UK | Manchester Institute

ecmc

NIHR | Manchester Biomedical Research Centre

CANCER RESEARCH UK | RadNet Manchester

CANCER RESEARCH UK | National Biomarker Centre

iMATCH
ADVANCED THERAPY TREATMENT CENTRE

ACED
INTERNATIONAL ALLIANCE FOR CANCER EARLY DETECTION

CANCER RESEARCH UK | Lung Cancer Centre of Excellence

Belfast-Manchester FASTMAN Cancer Centre of Excellence
PROSTATE CANCER UK

CANCER RESEARCH UK | Manchester Centre

Manchester Breast Centre
From Molecular Science to the Clinic

DIVISION OF CANCER SCIENCES

NCITA
National Cancer Imaging Translational Accelerator

CANCER RESEARCH UK | Manchester Centre
Clinical Academic Training Programme

The University of Manchester Cancer Beacon
Cancer
GLOBAL CHALLENGES MANCHESTER SOLUTIONS

Manchester Academic Health Science Centre
Cancer Domain

Manchester Research **Successes**

For decades, Manchester researchers have been pioneering studies that improve patients' lives locally, nationally, and internationally. From novel discoveries in cancer biology, to new therapies and treatment processes, we have a rich heritage across our seven core research fields:

- **Early detection science**
- **Radiotherapy**
- **Experimental and precision cancer medicine**
- **Biomarker sciences**
- **Global cancer genomics**
- **Advanced materials**
- **Digital cancer research**

As a postgraduate researcher, a PhD project in Manchester will directly impact these fields and contribute to successes that redefine how patients live with and beyond cancer.* Here are a selection of how your research could contribute to these themes:

Cancer Early Detection

When cancer is detected early, treatment is more effective, and survival is generally longer and with a higher quality of life. Working closely with clinicians, health economists, and laboratory scientists, our theme is focused on delivering real-world detection and diagnosis strategies that improve patient outcomes.

Our expertise in early detection covers the full spectrum of research, from modelling cancer outside the body on molecular scaffolds and identifying the risk factors for developing cancer, to devising new screening strategies that originate from the identification of biomarkers in the blood. Researching this field, you'll be at the forefront of early detection science, devising new methods and discoveries that can help identify cancer sooner and improve patients' lives.

Radiotherapy

Radiotherapy is used in around 50% of all cancer treatments. With a heritage dating back over 100 years, a radiotherapy PhD at Manchester will help build on these foundations by investigating ways to deliver more effective and safer radiotherapies to patients.

Radiotherapy research at Manchester is varied, from the delivery of targeted therapies using cutting-edge equipment like the MR-linac or proton beam therapy, combining radiotherapy with other therapies like chemo or immunotherapies, to the use of big data to improve radiotherapy delivery. A PhD from Manchester will set you up to become a radiotherapy specialist.

Global Cancer Genomics

Cancer is a disease of the genome and it is known that cancer affects populations differently and disproportionately across the globe. In Manchester, the global cancer genomics research theme is focused on understanding what factors impact how and why cancer differs among different populations.

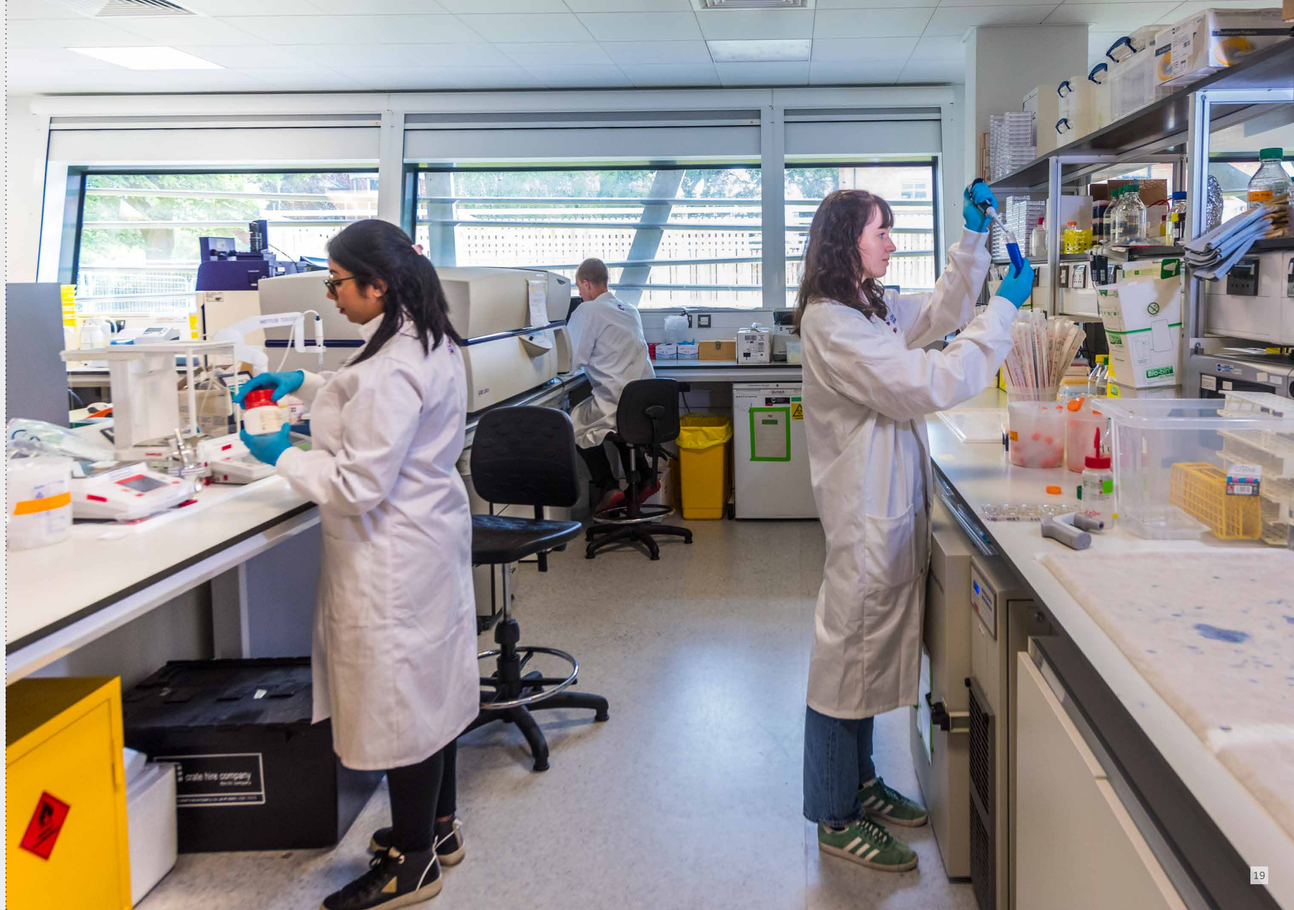
Cancer genomics research is actively investigating how factors such as ancestry, race, or our environment impact how aggressive cancer can be, as well as how treatments can be developed to work in low- and middle-income countries.

Experimental and Precision Cancer Medicine

Our Experimental and Precision Cancer Medicine theme is about delivering therapies targeted to an individual's cancer based on the genomic profile of their tumour. Working collaboratively with biomarker, clinical trials and genomics research groups, teams are focused on developing new targeted therapies that are more efficient and have fewer side effects.

Researching this field in Manchester, you'll be at the cutting edge of early phase clinical research, helping pioneer new precision medicine trials that improve the lives of people with cancer and discovering new biomarkers that shape how precision therapies are delivered.

*PhD projects are subject to proposals being submitted by prospective supervisors and the examples given provide an indication of the research work that could be performed in Manchester. For full details email the MCRC Training Office at **MCRCTraining@manchester.ac.uk**



Discover Manchester

Manchester is home to a diverse, energetic and welcoming population. The city has been voted one of the best in the world (Time Out's Best Cities in the World 2024), thanks to its strong history of science, thriving nightlife, live music scene, and iconic sports venues. Here are just a few reasons why Manchester is a great place to live and study:

Football

Manchester is famous across the world for football and fans are truly spoilt with Manchester United's Old Trafford and Manchester City's impressive Etihad Stadium within close proximity to the city centre. Both stadiums offer regular tours of their grounds and have different membership packages to watch live games.

Sport

It's not just football that you can experience in Manchester. Spend a day watching cricket at Lancashire Country Cricket club or see the Sale Sharks in action in a Rugby Union game. Thanks to Manchester's 2002 Commonwealth Games legacy, you can also experience the Manchester Aquatics Centre, the Regional Athletics Arena and Manchester Velodrome.

Music

The city has a rich music heritage and is the birthplace for famous artists like The Smiths, Oasis, Stone Roses, Joy Division, The Verve and The Blossoms to name just a few. Manchester still has a thriving music scene, with lots of bars in the city hosting open mic nights where you can listen to new and upcoming artists. The city also hosts annual music festivals, including Park Life in Manchester's Heaton Park.

Food and Drink

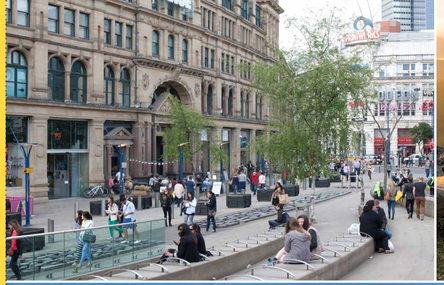
Manchester offers a diverse culinary scene with international restaurants across the city, including Chinese, Thai, Brazilian, Greek, Italian, and Spanish cuisines. The famous 'Curry Mile' in Rusholme features over 50 restaurants serving Indian, Pakistani, Bangladeshi, Lebanese, Turkish, and Afghan food. The Northern Quarter and Ancoats are home to Michelin Ranked restaurants and world-famous bars.

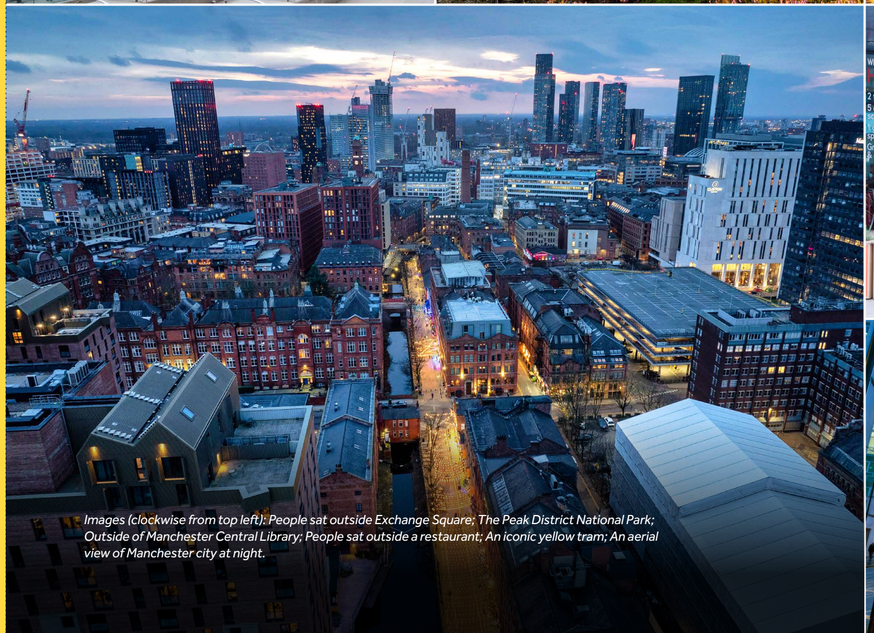
Culture

Manchester has an exciting and diverse cultural scene. The city hosts several live music events, as well as large-scale venues such as the AO Arena and Co-op Live Arena – the biggest indoor arena in the UK. We enjoy a rich arts scene, including HOME, the Manchester Art Gallery, Whitworth Art Gallery, Factory International and numerous theatres showcasing the best of traditional and contemporary culture. The city's Gay Village is a lively hub of LGBTQ+ entertainment and culture and hosts Manchester Pride each August bank holiday weekend. There are also several music and literary festivals including the Manchester International Festival and the Manchester Literature Festival.

Beyond Manchester

If you fancy leaving the bustling city, you're spoilt for choice. Manchester is just next door to the famous Peak District National Park, giving you the chance to experience picturesque views of the countryside. The Lake District and Snowdonia National Parks are also accessible by car and train. And if you want to venture further afield, you can reach London Euston in just over two hours from Manchester Piccadilly train station.





Images (clockwise from top left): People sat outside Exchange Square; The Peak District National Park; Outside of Manchester Central Library; People sat outside a restaurant; An iconic yellow tram; An aerial view of Manchester city at night.

10 Ways Manchester **Led The Way In Cancer Research**

1. Ernest Rutherford changed the world in 1917 when he split the atom at The University of Manchester – a breakthrough that resulted in the development of cancer-fighting radiotherapy.

2. Ralston Paterson, Herbert Parker and others developed the Manchester Method in 1932, the first international standard for determining the most effective dose of radium therapy.

3. The world's first randomised trial to treat ovarian ablation in breast cancer patients was carried out at The Christie Hospital in 1948.

4. In 1970, Dr Moya Cole and Dr Ian Todd conducted the first clinical use of tamoxifen (Nolvadex) to treat breast cancer.

5. The MCRC Biobank was set up in 2008 to collect and store biological samples from cancer patients in Greater Manchester to use in cancer research projects.

6. The first clinical trials in Europe for a pioneering new radioimmunotherapy cancer treatment took place in Manchester in 2009.

7. In 2017 the first UK pilot for a mobile cancer screening unit invited smokers and ex-smokers to a lung health check in convenient locations near to their homes.

8. Manchester hosts one of two NHS high-energy proton beam centres at The Christie, which opened in 2018.

9. The Christie NHS Foundation Trust began treating patients with a new MR-guided radiotherapy machine in 2019, making Manchester one of only two sites in the world to offer MR-Linac, proton beam therapy, and SABR treatments and research.

10. The Paterson Building, a new £150 million cancer research facility, opened its doors in 2023 and brings together one of the largest concentration of scientists, doctors and nurses in Europe.

Get In **Touch**

Please contact us to find out more about any of the training opportunities included in this guide: **MCRCtraining@manchester.ac.uk**

BEFORE YOU GO...

Why not listen to our new podcast '**One in Two: A Manchester Cancer Research Podcast**' and explore some of the discoveries that are shaping the cancer research landscape.

Scan the QR code to find out more.

www.mcrc.manchester.ac.uk/category/podcast

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