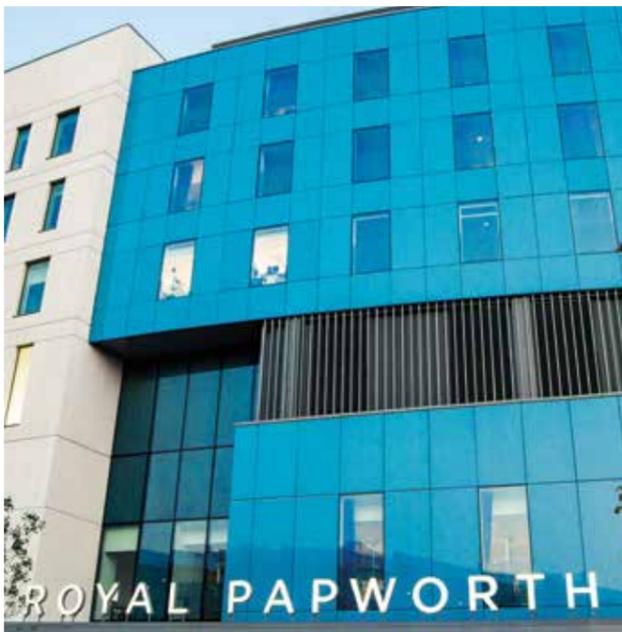




Building life sciences and healthcare partnerships

**Together
we can change
lives**



The UK is home to one of the strongest health and life sciences industries in the world, generating more than £74 billion turnover a year and developing life-changing treatments and diagnostics.

As the life sciences capital of the UK, Cambridge is at the heart of this success. In one place, we have one of the world's top universities for life sciences, some of the world's most prestigious research institutes, three of the world's leading hospital trusts, seven global healthcare companies, a dynamic cluster of science parks, biotech start-ups and University spin-outs – not to mention the extraordinary pool of talented researchers, clinicians and healthcare professionals who live and work in and around the City.

A key ingredient of Cambridge's achievements in the life sciences is having the right people in the right place at the right time. But there is also something distinctive about Cambridge. We believe that it stems in part from the University's philosophy of recruiting the very best minds and giving them the freedom to follow their intellectual curiosity. Cambridge actively encourages staff and students to seize opportunities, to start new ventures and to be entrepreneurial, both academically and commercially. When combined with a strong strategic oversight, professional co-ordination and support services, this adventurous mindset gets amazing results.

Recently, Cambridge has played a leading role in the national and global response to COVID-19 across a huge number of disciplines. For example, with the Wellcome-Sanger Institute, it has led a consortium of universities, NHS organisations and the UK's four public health agencies to sequence tens of thousands of samples of the SARS-CoV2 genome, providing critical insights into the origins and spread of the disease. Cambridge has also spearheaded a multidisciplinary project to develop an open source, easy-to-manufacture ventilator for use in low-income countries.

As a University, we want to build on our success, to go on making transformational discoveries and to drive economic growth both locally and nationally.

To make that happen, we need to collaborate with companies that can help us turn our bright ideas into commercial realities. If your organisation would like to work with us and become a part of the Cambridge story, please get in touch.

Professor Andy Neely,
Pro-Vice-Chancellor for Enterprise and Business Relations



Why Cambridge?

For world-leading research at the heart of a thriving ecosystem. **For** innovation, development, commercialisation and access to patients, all in one place. **For** the perfect conditions in which new ideas and businesses can emerge and flourish.



Research excellence

Cambridge is one of the world's leading universities. We bring research excellence to bear on problems from a wide range of disciplines in science and technology as well as the social sciences and humanities. **110** Cambridge affiliates have won Nobel Prizes, including **27** for Medicine.



Global companies are here already

In 2016 AstraZeneca moved its global R&D and corporate headquarters to Cambridge

7 other multinational healthcare companies also have a presence here.

As do more than **25** of the world's largest corporations, including Google, Amazon and Microsoft, all adding to the pool of talent, ideas and resources.



Entrepreneurial spirit

The turnover generated by Cambridge Cluster companies has grown by more than **7%** year-on-year, with the annual total currently standing at **£51** billion.

Cambridge has the largest biomedical campus in Europe.

There are **30+** science and technology parks in and around Cambridge including the renowned Babraham Research Campus and Wellcome Genome Campus.

And **440+** life sciences and healthcare companies, with more than **270** new ones started since 2011.



Talent and skills

At the Cambridge Biomedical Campus alone there are **20,000+** researchers, clinicians and healthcare professionals, including **10,000** staff in the Cambridge University Hospitals NHS Foundation Trust.

15,000+ people work for life sciences and health companies in and around Cambridge.



The NHS

3 of the UK's leading hospital trusts are in Cambridge – Addenbrooke's, the Rosie Maternity Hospital and Royal Papworth Hospital. Cambridgeshire and Peterborough NHS Foundation Trust work with them as they strive to improve the health and wellbeing of the people they care for. Clinicians, researchers and healthcare companies can work with each other and with patients, to get new ideas from 'bench to bed' as quickly as possible.



All in one place

Having so many talented people living and working together in close proximity creates opportunities for chance meetings which spark new ideas and collaborations.



It's easy to get to

Cambridge has excellent transport links nationally and internationally, with Stansted Airport close by, London (and Eurostar) **50** minutes away by train and planning already underway for a new Cambridge South railway station at the Cambridge Biomedical Campus.

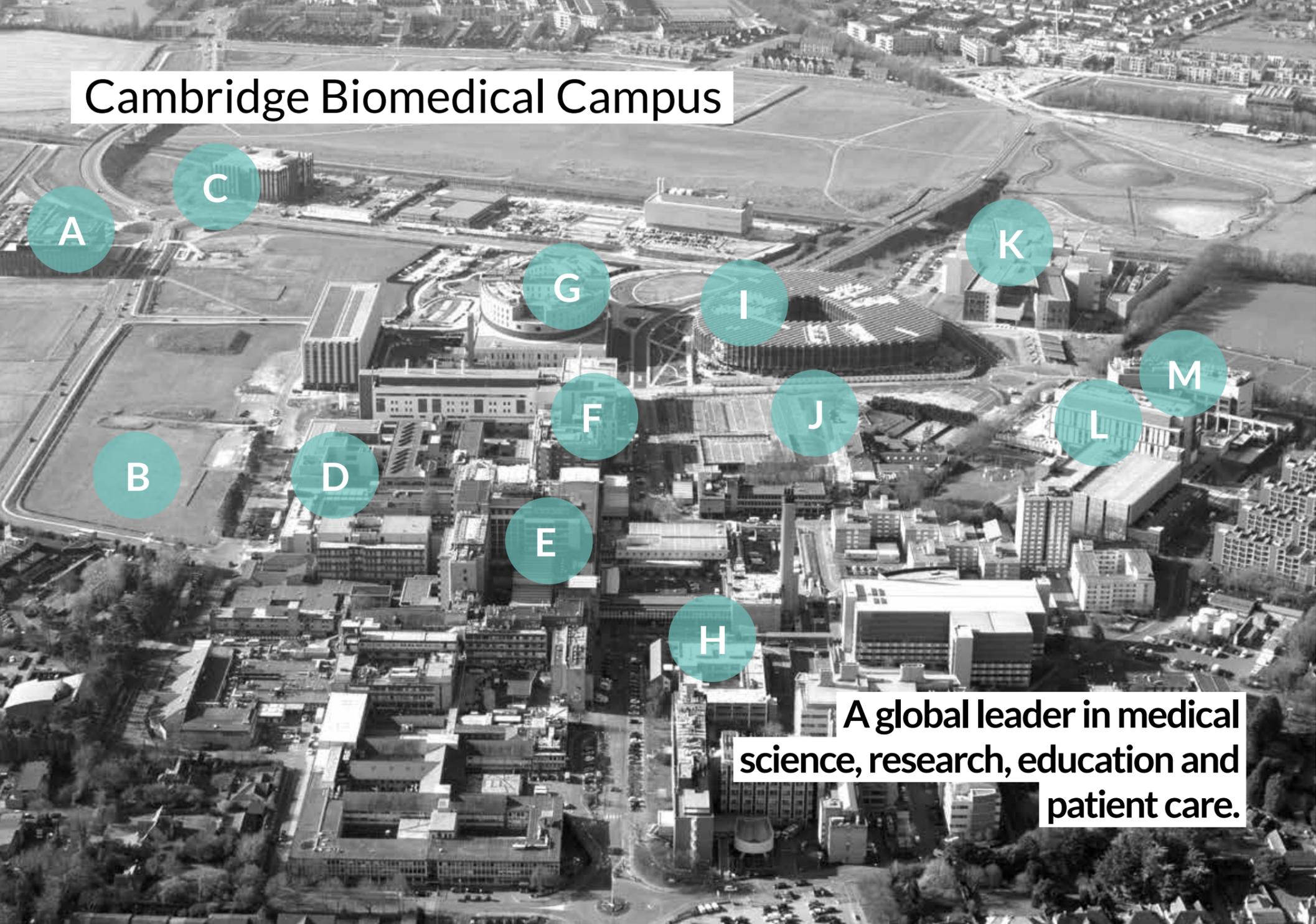


Nine ways in which Cambridge life sciences have changed lives

By discovering ...

- 1.** The structure of DNA
- 2.** How to sequence it, rapidly – giving us the foundations of precision medicine
- 3.** That breast cancer is not one disease but 10, all of which need different treatments
- 4.** How to create (eight million and counting) new lives through IVF
- 5.** How to transplant failing hearts and lungs (and other organs)
- 6.** How to clone a tadpole from a frog – paving the way for Dolly the sheep and the whole field of regenerative medicine
- 7.** How to make drugs using monoclonal antibodies leading to the development of six of the world's top 10 drugs used to treat millions of patients worldwide
- 8.** That x-rays can reveal how atoms are arranged in crystals
- 9.** And that the same technique can be used to determine the structures of proteins and enzymes, revolutionising drug discovery and medicine.

Cambridge Biomedical Campus



A global leader in medical science, research, education and patient care.



“Cambridge Biomedical Campus is a thriving community where the worlds of academia, industry, research and health meet, collaborate together and work to tackle some of the significant healthcare challenges facing the world today.”

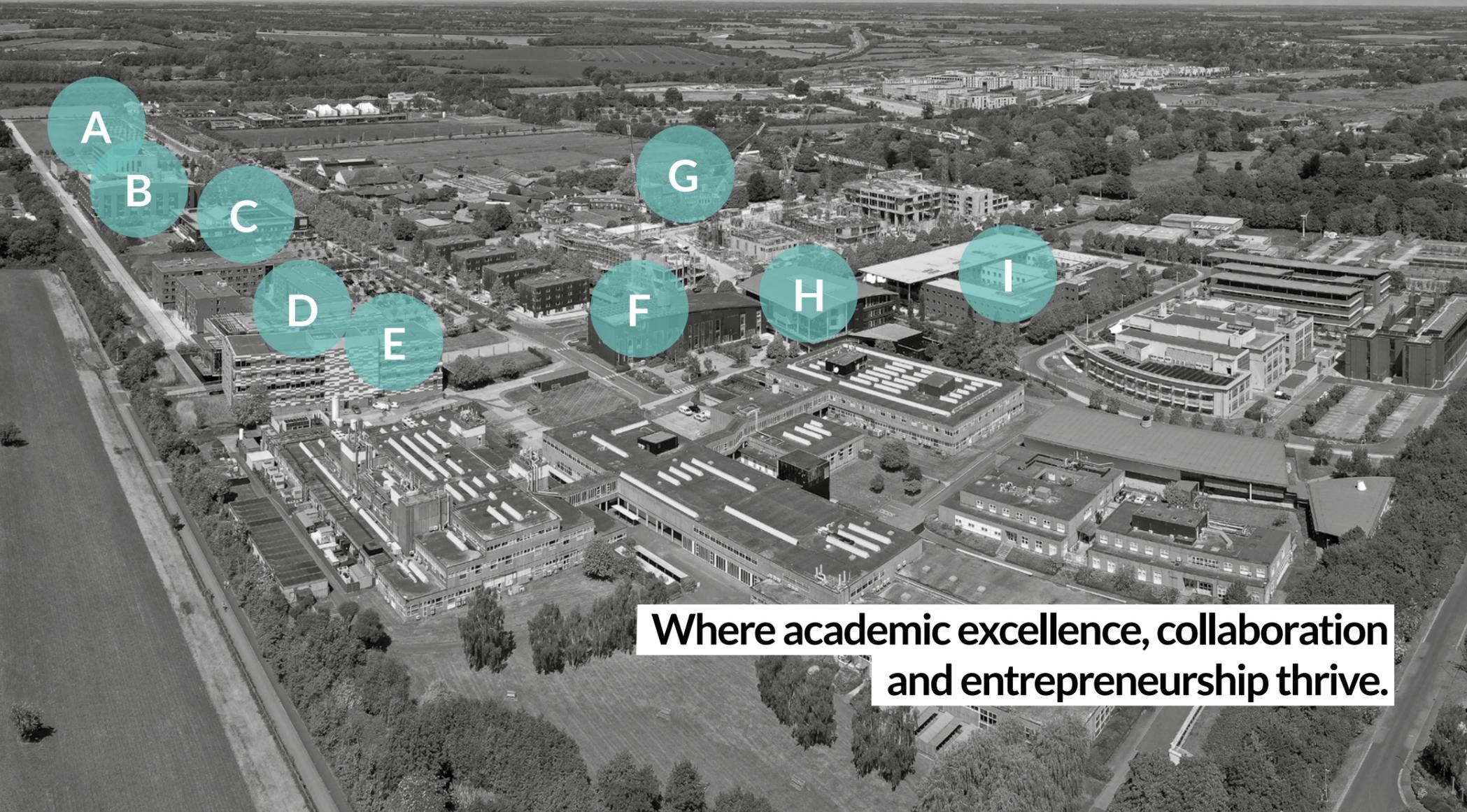
Professor Patrick Maxwell,
Regius Professor of Physic, Head of the School of Clinical Medicine

Cambridge:
the UK's capital of
life sciences **20,000+**
healthcare professionals
and research scientists
440+ life science and
healthcare companies.

- A. From University spinout to global company, Abcam supplies two thirds of the world's life scientists with the antibodies and reagents they need to develop new medicines.
- B. This is the site of a pioneering new children's hospital which will take a fully integrated approach to physical and mental health.
- C. The Anne McLaren Building is home to the COVID-19 Cambridge Testing Centre, a collaboration between the University, AstraZeneca and GSK. It also houses a new state-of-the-art animal research facility supporting the UK's life sciences sector.
- D. The Rosie Hospital is one of the UK's leading maternity hospital and largest neonatal units.
- E. Addenbrooke's Hospital is one of the largest and most renowned hospitals in the country, a leading national centre for specialist treatment, a government-designated comprehensive biomedical research centre and a university teaching hospital with a worldwide reputation.
- F. GSK's Clinical Research Unit designs and executes innovative early phase 1 and 2 studies.
- G. Royal Papworth Hospital is a world-leading heart and lung hospital. The new Heart & Lung Research Institute is now under construction alongside it.
- H. The University's School of Clinical Medicine has 12 Academic Departments, four Research Institutes and five Medical Research Council (MRC) Units.
- I. AstraZeneca's new global R&D centre and corporate HQ will be home to more than 2,000 scientists.
- J. Site of the new Cambridge Cancer Research Hospital, improving early detection and precision medicine.
- K. MRC Laboratory of Molecular Biology is a leading international research centre which has won 12 Nobel Prizes.
- L. The Jeffrey Cheah Biomedical Centre is home to the Milner Therapeutics Institute, the Wellcome-MRC Cambridge Stem Cell Institute and the Cambridge Institute of Therapeutic Immunology & Infectious Disease.
- M. Cancer Research UK Cambridge Institute brings world-leading basic cancer biology and key technologies to bear on cancer diagnosis, treatment and prevention.

The nearby School of Biological Sciences has nine Departments and five Institutes across Cambridge working on a huge breath of discovery and applied biosciences.

West Cambridge Campus



Where academic excellence, collaboration and entrepreneurship thrive.



“The University’s West Cambridge Campus plays a vital role in healthcare innovation, with Cambridge’s renowned Department of Veterinary Medicine situated alongside world-class research in science, technology and engineering. Increasingly companies base R&D teams here and it’s where the University’s support systems for commercialising new ideas are clustered.”

Professor John Dennis, Head of School of Technology, Professor of Chemical Reaction Engineering

University Enterprise Zone

Cambridge Health Tech Connect is a bridge between the Cambridge Biomedical Campus and West Cambridge Campus, catalysing connections and sparking collaborations between industry, healthcare and the University at the interface between medicine and technology.

- A. The Department of Materials Science and Metallurgy is combining the development of new materials with cell biology approaches and innovative characterisation to create new medical and drug delivery devices.
- B. Healthcare is one of the main research themes at the Department of Chemical Engineering and Biotechnology, specifically the formulation and delivery of biological medicines and designing new technologies for diagnosis and monitoring.
- C. At the Institute for Manufacturing researchers are exploring inkjet printing and additive manufacturing for diagnostics and medical devices, innovation management for healthcare and optimising pharmaceutical supply chains.
- D. Cambridge Enterprise helps University researchers, staff and students turn their ideas into commercial realities. It has helped create many successful life science spin-outs.
- E. Cambridge Innovation Capital backs world-leading life sciences and technology companies with an affiliation to Cambridge. Its portfolio companies include CMR Surgical and it is the founder of life sciences accelerator, Start Codon.
- F. The Physics of Medicine facility at the Cavendish Laboratory hosts research on a wide range of topics from fundamental science to commercial application.
- G. One of the world’s leading centres for veterinary science, the Department of Veterinary Medicine works on fundamental and applied aspects of infectious diseases, especially those that spread from animals to humans.
- H. The Maxwell Centre develops collaborative research projects with industry. It also plays a key role in the University Enterprise Zone, linking the Schools of Clinical Medicine, Physical Sciences and Technology with medical needs and applications.
- I. At the Department of Computer Science and Technology researchers are exploring AI and computational biology models to understand disease complexity and advance personalised and precision medicine.

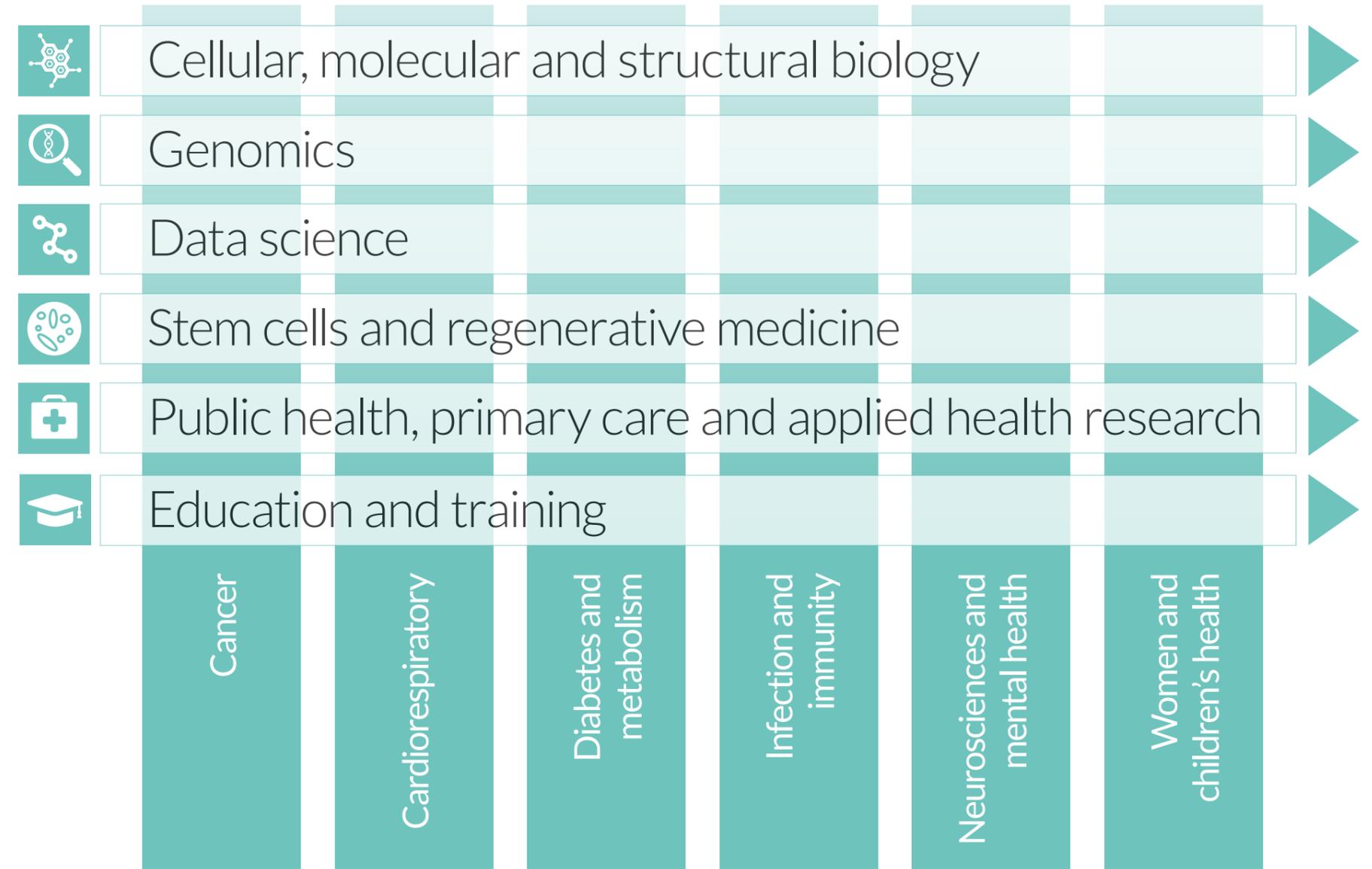
The nearby Department of Chemistry Cambridge’s has a distinguished history of using chemical research to solve fundamental biological problems. Its Chemistry of Health research is focused on preventing and treating Alzheimer’s, Parkinson’s and other neurodegenerative conditions.

How Cambridge research is making a difference

Our health research priorities are clustered around those areas where there is both pressing societal need and where we can make a breakthrough contribution to peoples' lives.



Key research areas



Here are just some of the ways in which we have been making a difference:



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TARGET:

Cancer

Over the last 40 years, cancer survival rates in the UK have doubled. As the leading centre for cancer research in the UK, Cambridge has a pivotal role to play in its prevention, detection and treatment.

Cambridge is making a difference...
To our understanding of breast cancer

Cambridge researchers have identified 10 different types of breast cancer, each with a different survival rate and requiring a different course of treatment.

And how we treat it

PREDICT, a web-based breast cancer prognosis and treatment tool developed at Cambridge is now widely used throughout the NHS and beyond to assess the best course of treatment after surgery.



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TARGET:

Cardiorespiratory disease

Heart attacks and strokes are the world's leading killers, accounting for 18 million deaths each year.

Cambridge is making a difference...
To global efforts to predict and prevent cardiovascular disease

An initiative co-led by Cambridge University and the World Health Organization has developed a new algorithm to predict heart attacks and strokes now recommended worldwide, tailored to the vastly differing circumstances of 21 global regions to better target preventive action.



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TARGET:

Infection and immunity

With the outbreak of COVID-19, the understanding and control of infectious diseases has become a global priority.

Cambridge is making a difference...
To our understanding of the transmission of COVID-19

In partnership with the Wellcome-Sanger Institute, Cambridge is leading the £20 million COG-UK Consortium, a major UK endeavour to track the mutation and spread of the infection through the genetic sequencing of tens of thousands of samples.

To organ transplantation

As well as its expertise in infectious diseases, Cambridge is also home to some of the world's most important breakthroughs in organ transplantation and immunosuppression. In 1979, the UK's first successful heart transplant was carried out at Papworth Hospital, followed by the world's first heart, lung and liver transplant in 1986. Organ transplantation remains a principal clinical and research interest of the University's Department of Surgery.



TARGET:

Diabetes, metabolism and obesity

Nearly a quarter of all adults and one in five children in England are currently classed as obese and it is estimated that more than four million people in the UK will have type 2 diabetes by 2025.

Cambridge is making a difference... By finding a genetic cause of severe obesity

Cambridge researchers are investigating the many factors that lead to obesity, including genetic mutations – and developing treatments for them.



TARGET:

Neurosciences and mental health

Multiple sclerosis is the most common immune system disorder affecting the central nervous system, with more than 2.3 million people affected globally.

Cambridge is making a difference... By developing a treatment for active relapsing multiple sclerosis

Campath-1H (now known as Alemtuzumab) was the first drug to result from Cambridge research into monoclonal antibodies, providing an effective treatment for relapsing remitting multiple sclerosis.

'Cross-cutting' research

In order to make progress in these key areas, Cambridge is also prioritising a number of critical underpinning capabilities and technologies.

AI and data science



AI is becoming increasingly important for diagnosis and clinical decision-making. Cambridge is at the forefront of these new developments, combining its expertise in life sciences with its world-leading research capabilities in mathematical, computing and data sciences.

A significant data resource for the life sciences community in Cambridge is access to the NIHR Cambridge Biomedical Research Centre, a bank of around 17,500 residents who have volunteered to take part in research studies.

Stem cells



Recognising the strength of Cambridge stem cell science, Wellcome and the Medical Research Council partnered with the University in 2012

to create the Wellcome-Medical Research Council Cambridge Stem Cell Institute. In 2019, it moved to new premises where researchers from different disciplines work alongside clinicians to accelerate the development of safe and effective treatments.

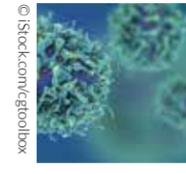
Genomics



Cambridge's pioneering work in genomics underpins clinical research across the University and will be a major focus for the new Children's

Hospital, specialising in the early detection and prevention of rare diseases and serious mental and physical health conditions in children and young people.

Molecular biology



The University's expertise in molecular biology, particularly in areas such as cell cycle, chromosomes and gene expression, underpins advances being made across the life sciences and healthcare sector.

Many revolutionary techniques have been pioneered at the MRC Laboratory of Molecular Biology, including DNA sequencing, methods for determining the three-dimensional structure of proteins and the development of monoclonal antibodies.

Global and public health



Reducing ill health nationally and globally is a key research focus for Cambridge. Work at Cambridge's Institute of Public Health spans studies of major non-communicable conditions such as cancer, cardiovascular diseases, diabetes and obesity, and diseases of ageing, such as neurodegenerative conditions and bone disorders.

Be part of the Cambridge story

Success breeds success. Which is why more than **25** of the world's largest corporations have already decided that they need a presence in Cambridge, including **Google, Amazon** and **Microsoft**.

In the life sciences, there are currently more than **440** companies based here spanning pharma, biotech, medtech, healthcare and data, generating more than **£5 billion** in revenues a year. These include **AstraZeneca** which in 2016 moved its global R&D centre and corporate headquarters to Cambridge and multinationals **Amgen, Biogen, Illumina, Gilead Sciences, GSK, Otsuka** and **NAPP** all have a presence here.



AstraZeneca

“We work with Cambridge University because it is one of the best universities in the world. Working with the best and brightest scientists is what’s going to enable us – and our Cambridge collaborators – to turn science into medicine and have a huge impact on patients’ lives.”

Sir Mene Pangalos,

Executive Vice President, Global Head of Biopharmaceuticals R&D at AstraZeneca



GSK

“GSK believes in strong, mutually beneficial collaborations with clinical and academic researchers. They are critical to advancing our R&D goal of doubling the development success rate of new medicines by focusing on genetically validated targets and leveraging advanced technologies, such as functional genomics. We welcome the opportunity to work closely with the University of Cambridge to achieve a shared vision – to harness innovation to accelerate the discovery and development of new medicines that can help more patients around the world.”

Dr Tony Wood,

SVP, Medicinal Science and Technology

Strategic partners working together to tackle COVID-19

To increase the UK's coronavirus testing capacity, AstraZeneca, GSK and the University set up a brand new laboratory from scratch in just three weeks. A project of this scale would normally take around six months but thanks to the efforts of 124 staff from across the three organisations putting in 2,292 hours of work, it was completed in record time. The lab is being used for high throughput screening for COVID-19 and to explore the use of alternative chemical reagents for test kits.



Where new ventures thrive

Abcam, Cambridge Epigenetix, Owlstone Medical, CMR Surgical and Bicycle Therapeutics are just some of the successful spinouts and start-ups that have made Cambridge their home – and are flourishing here.

“Cambridge is one of the few places in the world where you can find all the skills and expertise needed to develop and commercialise such an exciting medical device as Versius robot. Our location has made a significant contribution to our success.”

Martin Frost,
Co-founder, CMR Surgical

“Cambridge has been changing the world for over 800 years and it is only just getting started... Owlstone has benefited tremendously from being located in the heart of this incredibly dynamic environment. This has helped us to recruit top clinical scientists, engineers, chemists and other key personnel from the UK and around the world.”

Billy Boyle,
CEO, Owlstone Medical



Astex: pioneering fragment-based drug discovery

Another Cambridge success story is Astex Technology Limited. Formed in Cambridge in 1999 with venture capital and in partnership with the world’s leading pharmaceutical companies, its drug discovery platform was able to identify novel small molecule drugs addressing key disease targets.

This has resulted in two anti-cancer therapeutics, Kisqali for breast cancer and Balversa for bladder cancer, which were brought to market by Novartis and Janssen respectively. The platform underpins ongoing research into tuberculosis and cystic fibrosis.



Cyted

A Cambridge start-up is using artificial intelligence and biomarker discovery to revolutionise the early detection of cancer. Its first product for healthcare providers combines a machine learning approach to digital pathology with the ‘Cytosponge’, an innovative device for identifying pre-cancerous oesophageal disorders developed at the University.



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Collaboration in action

One way to engage is through the Milner Therapeutics Institute. In 2015, it established a consortium with the aim of turning pioneering science into new therapies by enabling new partnerships between Cambridge academics and industry.

Today, the consortium includes ten global pharma companies: AstraZeneca, GlaxoSmithKline, J&J Innovation, Pfizer, Astex, Shionogi, Ferring, Eisai, Bristol Myers Squibb and Eli Lilly and Company. This has led to more than 20 research collaborations focused on uncovering new disease mechanisms and therapeutic approaches.



Join us...

... to turn blue-sky thinking into groundbreaking realities. We are looking for business partners with whom we can pool our expertise and resources and together address some of the world's most pressing healthcare challenges.

Our long-term, multidisciplinary programmes give our partners access to research across the University, and to novel technologies, labs and facilities as well as to joint applications for public funding. We provide strategic oversight and operational support to help our partners find their way around the Cambridge ecosystem, identify opportunities for collaboration and ensure that they deliver value to both parties.

Collaborate on research

- Work with some of the world's leading experts to develop novel solutions to your most complex challenges
- Explore early-stage science and technology through engagement with entrepreneurial post-doctoral researchers
- Pilot projects by funding PhD students
- Join a pre-competitive consortium to share commercial expertise and research insights.

Develop and acquire talent

- Access executive education – bespoke or open courses – in topics such as leadership and innovation management as well as in specialist research areas
- Train clinical researchers in running experimental (Phase 1) clinical trials
- Bring talented Cambridge graduates into your business through recruitment or by hosting student internships, projects, and placements.

Access our labs, equipment and technologies

- Benefit from our state-of-the-art labs and equipment
- License (through Cambridge Enterprise):
 - » Cambridge-developed technologies – anything from a polymeric heartvalve to a quantitative checklist for autism in toddlers
 - » Research tools and reagents such as cell lines, antibodies, proteins, DNA constructs and small molecules
- Invest in some of the world's most exciting spin-out life science companies.

Work alongside us

And benefit from close proximity to brilliant people, great facilities and a supportive network through:

- Hot-desking and sharing office and bench space
- Or renting dedicated office space in University buildings.

Talk to us

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