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# The Francis Crick Institute

Discovery without boundaries



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# Introduction

On the 9th November 2016, The Queen and The Duke of Edinburgh officially opened the Francis Crick Institute, located at a state of the art new development next to St Pancras station in London.

In construction since 2011, the £650m institute is the biggest biomedical research centre under one roof in Europe, and is bringing together scientists from across disciplines to investigate the biology underlying pressing health concerns of the 21st century, from cancer to antimicrobial resistance. At full capacity in 2017, it will be home to 1,250 researchers, as well as 250 support staff, and will operate with an annual budget of over £130m.

The Francis Crick institute is the latest addition to an already thriving pharmaceutical and biosciences sector throughout the UK, particularly in the south east. London is at the heart of the so called 'Golden Triangle' of medical and life sciences research, which has long linked the capital's leading research institutions, with Oxford and Cambridge.

The addition of the Francis Crick Institute cements London's position as one of the world's leading hubs for research and development in the life sciences.

This thriving sector is currently worth £30bn to the UK economy annually, and employs 222,000 people. According to the New York Times, approximately 20% of the world's best-selling drugs are manufactured in the UK.

In 2014, London's City Hall invested in creating 'MedCity' a biotech cluster for London that brings together corporate funding, third sector involvement and academic research to spearhead the next generation of drug development. As part of its mission statement, MedCity aims to position the south east of England as a world leading, interconnected region for life sciences research, development, manufacturing and commercialisation - with the overall aim of stimulating economic growth.

As well as its contributions to the economy, the thriving biosciences sector helps make the UK one of the world's leading medical hubs, with some of Europe's and the world's foremost experts practicing both privately and in the NHS system.

With the launch of the Francis Crick Institute, the collaborative approach adopted by research institutions,



the supportive policy environment provided by City Hall and the backing of corporate funding, the biosciences and pharmaceutical sectors are set to thrive even more in London and the south east.

The success of this sector has had a positive impact for many industries, including events and exhibitions. London is one of the world's leading cities for medical and life science conferences and medical events make up one of the most lucrative segments of the market.

In the last few years, the city has played host to a number of major congresses, including ERA/EDTA (European Renal Association/European Dialysis and Transplant Association), the European Respiratory Society (ERS) congress and the European Society of Cardiology congress, which helped secure the capital's top five position in the International Congress and Convention Association (ICCA) rankings. In 2015 more than 3.7 million people travelled to London for business, spending more than £4 billion.

The continued growth and investment in London as a biosciences, pharmaceutical and medical hub simply serves to make the capital an even more relevant location for medical experts to gather in the future. 30bn to the UK economy annually

222,000 people employed



# Life sciences

### A jewel in Britain's crown

With exports worth £30bn annually and a pipeline of ground-breaking products, the life sciences sector is a jewel in Britain's crown.

In the wake of Brexit, The Prime Minister, Theresa May, wrote to one of the country's leading scientists, Professor Sir Paul Nurse, Director of the Francis Crick Institute and a former president of the Royal Society, stating:

"I wanted to write to you to make clear that the Government's ongoing commitment to science and research remains steadfast. The UK is enriched by the best minds from Europe and around the world and providing reassurance to them and to UK scientists working in Europe will be a priority."

The UK has been a powerhouse for scientific innovation for more than eight centuries. Not only does it have world-class universities, which for hundreds of years have attracted top talent from around the globe, but it has a centralised health service in the NHS which offers researchers a single point of access to explore innovation and manage patients. Facts about the UK life sciences sector:



#### £60bn turnover

Pharmaceuticals, medical biotechnology and medical technology sectors together comprise around 5,600 firms, employing 222,000 staff, with an R&D spend of nearly £5bn and an annual turnover of over £60bn.



#### The top 20

The 20 top global pharmaceutical companies have sites in the UK representing 80% of the total sector employment.



#### A global leader

With more than 1,200 medical biotechnology companies and over 3,600 medical technology companies, the UK has one of the largest life sciences sectors in Europe.



#### World class research

3,200 NIHR Clinical Research Networks have supported the practical delivery of 1477 new clinical studies through the recruitment of over 600,000 patients.

Queen Alexandra, Royal London Hospital STREET



# The Francis Crick Institute

The Francis Crick Institute is a biomedical discovery institute dedicated to understanding the fundamental biology underlying health and disease. Its work is helping to understand why disease develops and to translate discoveries into new ways to prevent, diagnose and treat illnesses such as cancer, heart disease, stroke, infections, and neurodegenerative diseases.

An independent organisation, its founding partners are the Medical Research Council (MRC), Cancer Research UK, Wellcome, UCL (University College London), Imperial College London and King's College London.

The Crick was formed in 2015, and in 2016 it moved into a brand new state-of-the-art building in central London which brings together 1500 scientists and support staff working collaboratively across disciplines, making it the biggest biomedical research facility under a single roof in Europe.

The Francis Crick Institute will be world-class with a strong national role. Its distinctive vision for excellence includes commitments to collaboration; to developing emerging talent and exporting it the rest of the UK; to public engagement; and to helping turn discoveries into treatments as quickly as possible to improve lives and strengthen the economy. The Crick Institute in numbers:

### 93,000 square metres

of floor space the size of 17.5 football fields

4 floors below ground and 8 above ground

### 1,553 Rooms

twice as many as Buckingham Palace

### 25,000

sensors will constantly monitor heat, light, pressure and humidity

### Over 100km

of mains power cables installed - equivalent to the distance from London to Southampton

What the press say:

### BBC

The Crick: Europe's biggest biomedical lab opens Sir Paul Nurse: "Britain is a great scientific nation and the Crick is a symbol that the UK is open for business."

### theguardian

#### Expectations for ground-breaking discoveries at landmark £700m biomedical research facility are high

"Discovery without boundaries is our tagline," says Sir Paul Nurse, "so we didn't want any physical barriers between our 120 labs. It's all about openplan, collaborative working and direct sightlines, in an environment that I hope will encourage a sort of gentle anarchy."

### CITYA.M.

#### The Francis Crick Institute: The first look inside London's new £650 million superlab

The technology in the institute allows scientists to do 100 experiments in the same time just one took 20 years ago.

#### Evening Standard

# State-of-the-art £650m superlab opens in London

Greg Clark, Business and Energy Secretary: "Our investment in the Francis Crick Institute will ensure the UK continues to harness the strength of our world-leading research base to improve lives, create businesses and jobs and drive economic growth across the UK."

## London

### A centre of medical excellence

London's life sciences businesses are at the heart of the sector — with 717 businesses, generating  $\pm$ 5.6bn and employing 27,200 people across the UK.

Just as the business models of these companies are highly diverse, so are the factors that attracted them to the capital. London's mass of renowned universities, research institutions and healthcare centres are integral to the sector's growth. Other major attractions include the NHS and the city's diverse population as a market and source of clinical data.

Many major companies choose to base their global or regional operations in London to draw on its talent pool as well as its position as a financial and regulatory centre. These include GSK's HQ in Brentford, Bristol-Myers Squibb UK in Uxbridge, Takeda's European office in Aldwych, and Gilead's international headquarters in Uxbridge and new office in central London.

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#### A city of breakthroughs

More research papers are generated in London than in any other city in the world, after Boston. At this time there are more than 50,000 students studying medicine and the NHS is currently investing £800m in clinical research.

#### **Pioneering MedCity**

MedCity was established in April 2014 by the Mayor of London with the Higher Education Funding Council for England and the capital's three Academic Health Science Centres – Imperial College Academic Health Centre, King's Health Partners and UCL Partners.

Designed to stimulate greater economic growth, MedCity binds together London, Oxford and Cambridge as worldleading, interconnected regions for life sciences research, development, manufacturing and commercialisation.

MedCity is designed to promote life sciences by:

- Providing a single front door and 'concierge service' for industry and investors looking for partners, infrastructure and expertise
- Facilitating and supporting collaboration across all parts of the sector to turn innovations into commercial products and services
- Fostering an environment that supports and encourages entrepreneurialism
- Raising awareness globally of the region's rich life sciences ecosystem

Over the next 20 years, MedCity will position the greater south east of England as a world-leading, interconnected region for life sciences research, development, manufacturing and commercialisation, stimulating greater economic growth.

#### Life sciences ecosystem

London and the greater south east is a world leading centre for life sciences, boasting a joined up ecosystem of research, public and private investment, international companies and skills. It comes as no surprise that the region's life sciences sector is booming: according to recent figures, new jobs in London's life sciences sector created by international investment tripled in 2014-15 compared to the previous year.

#### **Incubator base**

London provides vital incubator and research space for companies at a variety of stages. With incubator space in heavy demand in the Capital, provision is growing to attempt to meet the need.

The London Bioscience Innovation Centre at St Pancras and the Queen Mary Bioenterprises Innovation Centre in Whitechapel together offer 70,000 sq ft of mixed office and laboratory space. The new londoneast-uk Park offers 17 acres on a site formerly owned by Sanofi, while both Imperial West and UCL East, now in planning and construction, will offer significant opportunities for researchers and businesses to work side by side.

#### International appeal

Examination of this sector shows that leading international companies are drawn to London to take advantage of:

- World class science in leading universities and research institutes
- Expert regulatory and professional services
- Highly skilled, world leading talent
- A strong financial sector
- London's diverse population, providing a unique basis for clinical research

London in numbers:

£16 billion in clinical funding annually - more than any other European city

1,904 life science companies

Over 8,000 healthcare companies

60% of clinical trials in Europe carried out in the UK 5 world class medical schools

1,300 biomedical researchers

12 teaching hospitals

Over 39,400 life science papers generated 18 medical research councils

Over 45 universities

50+ research centres

7 out of the UK's 11 biotechnology resource centres

**1,000** life sciences companies are thriving in London





# The NHS

# A powerhouse for research and development

In September 2016, the Government announced an £816 million investment in NHS research, the largest ever investment into health research in the UK.

Leading NHS clinicians and universities will benefit from new world class facilities and support services built by the 5-year funding package.

Mental health research will see funding increase to nearly £70 million, dementia to over £45 million, deafness and hearing problems will receive over £15 million and antimicrobial resistance research rises to around £45 million.

Health Secretary Jeremy Hunt said: "The UK has so often led the world in health research – from the invention of the smallpox vaccine to the discovery of penicillin and the development of DNA sequencing. Today, we are making sure the UK stays ahead of the game by laying the foundations for a new age of personalised medicine. We are supporting the great minds of the NHS to push the frontiers of medical science so that patients in this country continue to benefit from the very latest treatments and the highest standards of care."

The funding has been awarded to 20 NHS and university partnerships across England through the National Institute for Health Research (NIHR). Each of the 20 biomedical research centres will host the development of new, ground-breaking treatments, diagnostics, prevention and care for patients in a wide range of diseases like cancer and dementia.

The table below shows the successful applicants who will receive a share of the £816 million investment. Each local partnership between the NHS and university will be known as an NIHR biomedical research centre.

NHS host organisation	Academic partner	Research themes	Funding for 5 years from 1 April 2017
Barts Health NHS Trust	Queen Mary University of London	Cardiovascular devices and innovative trials, inherited cardiovascular disorders	£6,557,380
Cambridge University Hospitals NHS Foundation Trust	University of Cambridge	Antimicrobial resistance, cancer, cardiovascular and respiratory disease, dementia and neurodegenerative disease, gastrointestinal disease, integrative genomics, mental health, metabolism, endocrinology and bone, neuroscience, nutrition, diet and lifestyle, population and quantitative science, transplantation and regenerative science, women's health and paediatrics	£114,300,000

NHS host organisation	Academic partner	Research themes	Funding for 5 years from 1 April 2017
Central Manchester University Hospitals NHS Foundation Trust	University of Manchester	Advanced radiotherapy, cancer prevention and early detection, cancer precision medicine, dermatology, hearing health, respiratory medicine, targeted therapy in musculoskeletal diseases	£28,500,000
Great Ormond Street Hospital for Children NHS Foundation Trust	University College London	Advanced treatments for structural malformation and tissue damage, gene, stem and cellular therapies, genomics and systems medicine, novel therapeutics and their translation into childhood disease	£37,005,790
Guy's and St Thomas' NHS Foundation Trust	King's College London	Cardiovascular disease, cutaneous medicine, genomic medicine, imaging sciences, infection and immunity, oral health, regenerative medicine and cellular therapy, transplantation, women and children's health	£64,400,267
Imperial College Healthcare Trust	Imperial College London	Brain sciences, cancer, cardiovascular, gut health, immunology, infection and AMR, metabolic medicine and endocrine, surgery and technology	£90,008,746
Leeds Teaching Hospitals NHS Trust	University of Leeds	Preventing disease and disability in immune mediated inflammatory disease, improving treatment of osteoarthritis	£6,736,575
Moorfields Eye Hospital NHS Foundation Trust	University College London	Gene therapy, genomic medicine and informatics, inflammation and immunotherapy, regenerative medicine and pharmaceutics, visual assessment and imaging	£19,075,000
Newcastle upon Tyne Hospitals NHS Foundation Trust	Newcastle University	Dementia, liver disease, musculoskeletal disease, neuromuscular disease, skin and oral disease	£16,208,633

NHS host organisation	Academic partner	Research themes	Funding for 5 years from 1 April 2017
Nottingham University Hospitals NHS Trust	University of Nottingham	Deafness and hearing problems, gastrointestinal and liver disorders, mental health and technology, musculoskeletal disease, respiratory disease	£23,642,003
Oxford Health NHS Foundation Trust	University of Oxford	Adult mental health, older adults and dementia, precision psychological treatments	£12,824,900
Oxford University Hospitals NHS Foundation Trust	University of Oxford	Antimicrobial resistance and microbiology, cardiovascular, diabetes and metabolism, gastroenterology and mucosal immunity, genomic medicine, haematology and stem cells, multi-modal cancer therapies, multimorbidity and long term conditions, musculoskeletal, neurological conditions, obesity, diet and lifestyle, respiratory, stroke and vascular dementia, surgical innovation and evaluation, technology and digital health, vaccines for emerging and endemic diseases	£113,718,800
The Royal Marsden NHS Foundation Trust	The Institute of Cancer Research	Breast cancer, gastrointestinal cancers, novel cancer therapeutics, prostate cancer, targeted physical therapies, uncommon cancers	£43,074,315
Sheffield Teaching Hospitals NHS Foundation Trust	University of Sheffield	Translational neuroscience for chronic neurological disorders	£4,049,681
South London and Maudsley NHS Foundation Trust	King's College London	Affective disorders and interface with medicine, bioinformatics and statistics, biomarkers and genomics, child and neurodevelopmental disorders, clinical and population informatics, dementia and related disorders, mobile health, neuroimaging, obesity, pain, patient and carer involvement and engagement, psychosis and neuropsychiatry, substance use, translational therapeutics	£65,977,500

NHS host organisation	Academic partner	Research themes	Funding for 5 years from 1 April 2017
University College London Hospitals NHS Foundation Trust	University College London	Cancer, cardiovascular disease, deafness and hearing, dementia and mental health, immunity, inflammation and immunotherapeutics, neurological diseases, obesity, oral health and disease	£111,503,317
University Hospitals Birmingham NHS Foundation Trust	University of Birmingham	Inflammatory arthritis, inflammatory bowel disease, inflammatory sarcopaenia	£12,120,962
University Hospitals Bristol NHS Foundation Trust	University of Bristol	Cardiovascular disease, mental health, nutrition, diet and lifestyle (including obesity), reproductive and perinatal health, surgical innovation	£20,858,545
University Hospitals of Leicester NHS Trust	University of Leicester	Cardiovascular, lifestyle, respiratory	£11,591,314
University Hospital Southampton NHS Foundation Trust	University of Southampton	Life-course nutrition, lifestyle and health, respiratory and critical care	£14,509,067

The UK is already a world leader in pioneering medical breakthroughs and this record investment will ensure this strong tradition continues. It is estimated that for every £1 the Department of Health invests, hospitals/ universities will generate £6 from public funders of research, charities and industry partners. Previous rounds of funding have led to medical breakthroughs, including:

- Genetically engineering patients' own cells to attack cancer
- Gene-edited immune cells to treat 'incurable' leukaemia
- Clinical trials of new T-cell treatment for cancer
- MRI brain scans to detect early Parkinson's
- Detection of the early signs of Alzheimer's disease
- Multi-gene DNA sequencing to help predict cancer patients' responses to treatment
- New immunotherapy trial to test cancer vaccine

# A professional viewpoint

#### A world leader in life sciences:

"The city provides access to premier clinical trial centres, a world-leading research and talent base, and a highly sophisticated pool of angel investors. I cannot imagine a richer ecosystem for early-stage medical device companies." **Dr David Tuch, CEO, Lightpoint Medical** 

"There is a wealth of evidence that life sciences in London and the greater south east have reached a level of momentum that now looks unstoppable." Sarah Haywood, Chief Operating Officer, MedCity

#### Future investment:

"Our research is crucial to ensuring patients receive the most effective treatments. This major government investment will enable us to continue breaking boundaries, keeping the UK at the forefront of medical science"

David Lomas, Academic Director, UCL Partners

"This is a fantastic result. The renewed funding will go far to reinforce the areas of research where we are already world leaders."

Sir Robert Naylor, Chief Executive, UCLH

"The future of NHS care depends on the science we do now. This new funding will enable clinical researchers to keep pushing for medical breakthroughs. The NIHR Biomedical Research Centres announced today offer huge potential benefits for patients across the country. **Professor Chris Whitty, Chief Scientific Advisor**  "It is tremendous to have reached the point when science is beginning in our glorious new building. It's been an achievement of many people to this point - in the design, the construction, the fitting out, and the project management of moving in people, equipment and experiments. To do this while also running active research programmes across multiple sites speaks to the skill and effort of our staff and supporters. It gives a sense of what we'll be able to achieve once we're all together in our new home."

David Roblin, Chief Operating Officer and Director of Scientific Translation, Francis Crick Institute



# Conclusion

London is the natural meeting point for the world. It is a leading city in the world's economy and a centre of international trade and finance. If you're looking for new business partners, investors, customers or sponsorship for your event, you have a wealth of organisations to approach.

The city continues to nurture some of the finest research and technology developments, in the world, while its influence through medical schools, universities and hospitals is second to none. It is a city of excellence in the fields of medicine and biotechnology.

One of the most important reasons for London's success is its ability to continuously reinvent itself. Change is constant in London. For decades England's capital has been the launch pad for new ideas and trends. It's an innovative hub where there is always something new to do and see. If it happens, it happens in London first.

In the last few years, London has attracted the top life sciences events in their field, including The European Society of Cardiology (ESC) Congress in 2015 and European Respiratory Society (ERS) Congress in 2016.

"A congress can't work unless the city, the venue and the organiser work in partnership, and the partnership between ESC, London & Partners and ExCeL London has been so strong that it has been difficult to tell the teams apart: they've worked as one, to deliver a great event," Isabel Bardinet, CEO, European Society of Cardiology

