



London's life sciences in focus

At the heart of the economic agenda

Welcome

Launched in April 2014 by Mayor of London Boris Johnson, MedCity's unifying aim is to drive growth in the life sciences and healthcare sector across London and the south east of England.

Why is life sciences at the heart of the economic growth agenda for this region? The answer is simple. We are home to incredible strength, breadth and depth. We have world-class higher education institutions, leading specialist and teaching hospitals, a pipeline of investments into infrastructure, and a dynamic industrial base of large and small companies, backed by a vibrant community of service and supply chain companies.

Now, set down in one place, you can get a sense of the richness and the opportunity that exists across London, based on research that has been undertaken over the past year. It is truly exciting to be part of this community, and I hope you will be inspired to collaborate with and support MedCity as we continue our work.



Eliot Forster
Executive Chair
MedCity



A snapshot of London's life sciences

London has all of the ingredients of a dynamic ecosystem through which the life sciences sector thrives and prospers. Below is a snapshot of its main elements.



Networks

One Nucleus, OBN, Digital Health Professionals Network, Bioscience in the Knowledge Quarter



Incubators

London Biosciences Innovation Centre, Imperial Innovations Incubator, QMB Innovation Centre, londoneast-uk Business and Technical Park, Healthbox



Research institutions

Wellcome Trust, Institute of Cancer Research, Francis Crick Institute, Cell Therapy Catapult



Consumers

A growing and highly diverse population of **8.6 million**, served by a single healthcare system, providing a significant customer base



Specialist early stage finance

Angels in MedCity, London Co-Investment Fund, Syncona Partners



Universities

40 diverse universities with around **96,800** students and **29,600** graduates in life sciences subjects each year



Major healthcare centres

3 of the UK's seven Academic Health Sciences Centres – Imperial College Academic Health Science Centre, King's Health Partners and UCLPartners. Specialist healthcare centres including Moorfields Eye Hospital, Royal Marsden, Royal Brompton, St Mark's Hospital



Businesses

London's life sciences businesses are at the heart of the sector – with **717** businesses, generating **£4.7bn** and employing **21,500** people across the UK

Life sciences companies, jobs and locations – the geography of London’s life sciences

London's life sciences businesses are at the heart of the sector – with 717 businesses, generating £4.7bn and employing 21,500 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, AstraZeneca's corporate HQ in Paddington, Bristol-Myers Squibb UK in Uxbridge, Takeda's European office in Aldwych, and Gilead's international operations in Uxbridge and new headquarters in central London.

Overall, medical biotech and industrial biotech companies are strongly concentrated in central and inner London, while pharmaceutical firms are more dispersed and more likely to be found in outer London.

In outer London, firms tend to cluster more in the west than the east, while in central and inner London, they are widely distributed, with minor concentrations around the main research facilities in South Kensington, the Euston Road 'Knowledge Quarter', Whitechapel and London Bridge.

717 life sciences businesses, generating **£4.7bn** and employing **21,500** people across the UK



Infrastructure – scale and quality

The scale and quality of London's research infrastructure and related organisations is a key reason for the growth of life sciences firms – both for start-ups and inward investors.

London's universities are consistently rated as amongst the best in the world. The most recent QS World University Rankings (September 2014) place Imperial College London and University College London in the world top five, King's College London, London School of Economics and Queen Mary University of London in the top 100. London's neighbours Oxford and Cambridge also appear in the top five.

This strength results not only in commercialisable R&D but also graduate talent, with 29,645 people graduating in a life sciences subject in London in 2013/2014.

London's research-intensive universities also have active technology transfer functions, the best known of which is Imperial Innovations. Originally founded as the technology transfer company for Imperial College, it now also invests in the research coming out of other London universities as well as Oxford and Cambridge. It has 98 current investments, of which two thirds of the value is in therapeutics and medtech. Of its top 20 investments by value, nine are in therapeutics and four in medical technologies, with over £112.5 million investments from Imperial Innovations.

Medtech spin-outs from Imperial are likely to increase as a result of a £40 million gift from a former student to build a biomedical engineering centre at Imperial West. King's boasts involvement in 17 active biosciences spin-outs, and owns shares in 12, while UCL has 31 active spin-outs in biomedical sciences.

Other institutions key to London's life sciences industry include leading research centres such as the Wellcome Trust and the Institute of Cancer Research; the latter is now planning expansion in Sutton that would create the world's second largest cancer research campus.

Significant recent developments representing a clear commitment to commercialisation and collaboration in the research base include the Cell Therapy Catapult and Francis Crick Institute, due to be fully operational in 2016. The latter will bring together 1,250 scientists across a range of disciplines focused on understanding why disease develops and finding new ways to treat, diagnose and prevent illnesses such as cancer, heart disease, stroke, and infectious and neurodegenerative disease.

The creation of Academic Health Sciences Centres, which began in 2007, also signifies a growing focus on moving innovation swiftly from the lab to the patient.

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.

The Francis Crick Institute will bring together **1,250** scientists across a range of disciplines



Sector strengths and challenges



Life sciences in London are benefiting from the increasing demand for healthcare globally but the capital can claim distinctive features that are driving exceptional growth:

- > the outstanding strength, scale and diversity of the research base
- > the location of several major teaching hospitals in London, each with international quality specialisms and facilities
- > the scale of the specialist labour market
- > the scale and diversity of the population
- > London's World City status and the resulting benefits such as excellent national and international networks and links, major conferences, exhibitions and other events which bring relevant people and organisations to London
- > the presence of specialist services, particularly sources of funding

Challenges to growth are well-recognised, with existing and new initiatives underway to address them:

- > currently, demand exceeds supply for incubation and grow-on space, particularly for firms that need lab facilities
- > compared to USA clusters, there is a shortage of large-scale, long-term capital available
- > the need to encourage greater inter-institutional collaboration is recognised

These issues figured largely in the decision to create MedCity, which is leading initiatives to tackle them including developing a new life sciences-focused angel investor network Angels in MedCity, partnering with the London Stock Exchange, and analysing demand and potential for increasing the stock of working space in the sector.

“ London is well placed to attract staff from a wide catchment area. Proximity to airports and the variety of EU regulations/local regulations and diverse patient populations provide a great opportunity... to access EU development resources and reach towards commercial goals. Greater access to London NHS, Universities and other institutions as partners may be one of the paths worth exploring for future collaboration ”

Extract from biotech company's response to the London Tech Census, 2015



Case study



Dr David Tuch

CEO of Lightpoint Medical

London is a prime location for developing and commercialising medical device technologies, according to Dr David Tuch, CEO of Lightpoint Medical. Founded in 2012, and working in partnership with Guy's Hospital and University College Hospital London, Lightpoint Medical is developing imaging technology that for the first time enables surgeons to detect cancer in real time during operations.

The new technology, currently in clinical trials in multiple hospitals, aims to tackle the high failure rate of cancer surgery, most notably breast and prostate cancer. Currently around one in four women in the UK undergoing surgery for early-stage breast cancer requires at least one re-operation because there is no accurate way to detect microscopic cancerous deposits during the operation, with surgeons relying on look and feel to make a judgement. In many cases, this means that cancerous tissues are not completely removed, leading to at least one repeat operation.



The city provides access to premier clinical trial centres, a world-leading research and talent base, and a highly sophisticated pool of angel investors

Lightpoint Medical is tackling this issue with two devices based on Cerenkov Luminescence Imaging – LightPath, a fixed scanner that can scan the surface of a removed tumour in a few minutes, and EnLight, a flexible fibre optic camera that can scan inside the breast to check the remaining tissue to ensure there are no remaining tumour cells.

According to Dr Tuch, working in London has been instrumental to the company's success. "The city provides access to premier clinical trial centres, a world-leading research and talent base, and a highly sophisticated pool of angel investors," he says. "I cannot imagine a richer ecosystem for early-stage medical device companies."

This case study was provided by MedCity and London & Partners

Case study



Cosmin Mihaiu

Chief Executive & Founder, Mira Rehab

Mira is a software platform designed to make physiotherapy fun and convenient for patients recovering from surgery or injury. The software transforms existing physical therapy exercises into video-games, and uses an external sensor to track and assess patient compliance. Online tutorials are provided to take patients through exercises in order to increase patient engagement throughout their therapy. The application can also be used at home, in between rehab sessions at the clinic.

Mira Rehab was founded by Cosmin Mihaiu, a Romanian graduate who developed the business idea as a student project. In June 2012 he found the Healthbox accelerator website, applied and was accepted for a place. He started there in September 2012, and consequently incorporated his company in the UK.

Healthbox was very helpful, providing space, investment and advice. On graduating from the four month accelerator programme, Cosmin wanted to maintain the contacts he had established in the UK so remained in London.

Having established his business in London, Cosmin now regards the city as the best business location in Europe

Mira Rehab's market is healthcare providers in public and private sectors. Cosmin considers that success in the NHS market will guarantee success in international markets, so is focusing on increasing the number of NHS contracts secured by Mira Rehab.

Cosmin is currently in the early stages of seeking another investment, this time of around £100k, to support the next stage of growth.

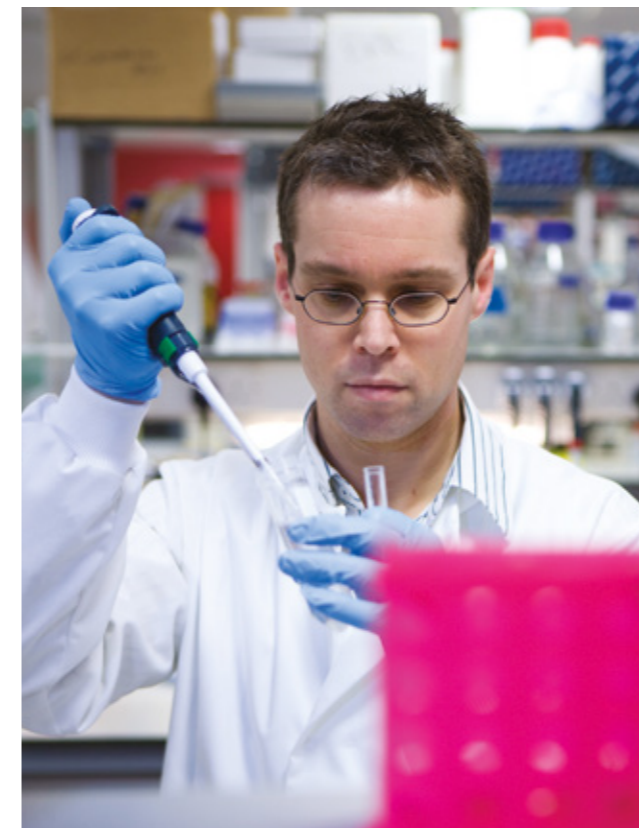
Having established his business in London, Cosmin now regards the city as the best business environment and access to funding for early stage companies. The SEIS and EIS schemes are valuable to stimulate early stage investment in UK. The fact that London is English speaking is also important in comparison with other European cities. In addition, the NHS is a very large and important market.

Within London, a central location is important because of access to the main London hospitals, which are Mira's market, and national and international transport networks.

Based on an interview with Cosmin Mihaiu, founder of Mira Rehab Ltd. Please note that the case study has been shortened by MedCity for the purposes of this document.

Conclusion – borderless London

Our analysis focuses on London's life sciences strengths, but any examination of life sciences within the capital quickly leads to the conclusion that we must consider London within the context of the greater south east. The immense research and development expertise of Oxford and Cambridge added to that of London's is an irresistible draw for industry. The region also provides vital incubator, grow-on and research space for companies at a variety of stages, and vibrant new clusters are growing across the region most notably in Kent, Southampton, Stevenage and within the corridor that joins London and Cambridge.



Many firms that begin in London may decide to scale-up elsewhere in the region, which should be regarded as a healthy sign that the market is working effectively, enabling companies to find the most advantageous location – and thereby retaining them in the UK.

There is a wealth of evidence that life sciences in London and the greater south east has reached a level of momentum that now looks unstoppable. There are still challenges to be fixed – in particular access to investment and space – but despite that we continue to punch well above our weight in the worldwide market, and together we are coming up with new creative ways to address these issues.

The confidence and optimism of the life sciences sector in London and the greater south east is tangible. MedCity's role is to fuel and direct this trajectory to achieve our 20 year mission to develop London and the greater south east as one of the world's leading clusters for life sciences research, development, manufacturing and commercialisation.



Sarah Haywood
Chief Operating Officer
MedCity

London and the greater south east is a world leading centre for life sciences, boasting a rich ecosystem, driving innovation and commercialisation. It comes as no surprise that the region's life sciences sector is booming: according to our figures, new jobs in London's life sciences sector created by international investment tripled in 2014–15 compared to the previous year.

Examination of the sector shows that leading international companies are drawn to the region 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

Significant inward investment in life sciences continues across the region. Recent notable examples include a new commercial HQ by Gilead Sciences and Pfizer's London-based Genetic Medicine Institute and Rare Disease Consortium. This is a trend we want to support and grow.

As London's official promotional company, we look forward to working with more overseas companies and investors in the year ahead to cement the region's status as a leading centre for life sciences.



Gordon Innes
Chief Executive Officer
London & Partners

Find out more

MedCity can help you to access, invest in and collaborate with life sciences activity across London and the greater south east.

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London & Partners is the official promotional company for London. For practical information on how to set up your business in London, visit our website or contact us to see how we can help.

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This document is based on Mapping London's Science and Technology Sectors, 2015 report by SQW and Trampoline Systems, sponsored by the London Enterprise Panel, with additional input from MedCity.

*Please note that the original SQW report defined life sciences according to the ONS Science & Technology – Life Science classification, but excluded all Healthcare Services. The following sub-categories Pharmaceutical manufacture, Medical (exc. Pharmaceutical), optical & precision equipment manufacture and Biotechnology research and development were included, which was replicated in this document. Furthermore, Trampoline Systems completed a thorough analysis to correct for the inconsistent treatment of group-subsidiary relationships (and the consequential allocation of employee jobs to SIC codes). The disaggregation process for holding companies was as follows: For each holding company, where the summed output of all its subsidiaries was smaller than the holding company's output, Trampoline Systems subtracted the summed output of all its subsidiaries from the holding company's output, leaving the excess output for the holding company.