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BIA
UK BioIndustry Association

Building something great: UK's Global Bioscience Cluster 2016

Contents

Updated 22 September 2017

Foreword from UK BioIndustry Association Chief Executive, Steve Bates, OBE

The UK has some of the world's most exciting science, a supportive business environment, and strong companies led by experienced management teams. We have an opportunity here to build something great – a global bioscience cluster that delivers life-changing treatments for patients in the NHS, rewarding and high-paying R&D and manufacturing jobs for people across the UK, and sustainable long-term economic growth for the country.

The UK is recognised as a world leader in the life sciences, and the sector contributed £30.4bn to the UK economy in 2015 and supported 482,000 jobs, according to a recent report by PwC. Two-thirds of the sector's jobs are outside London and the South East, a Government report revealed on 6 April 2017.

As this report demonstrates, the UK is in a strong position to close the gap on the leading life science clusters in Boston and the San Francisco Bay area – and maintains its lead in Europe. This is despite a challenging year of financial uncertainty with Brexit and the US election leading to markets cooling across the globe in 2016, meaning UK companies are having to work harder than ever to secure the funding that they need.

There's no lack of ambition in our sector and we are ready to work with the Government to address the funding challenges we have identified as holding us back. We need to achieve a sea change in the quantum of capital available to bioscience companies. This must be a core objective of the Treasury's Patient Capital Review in the second half of the 2017.

This is the first year that we have worked with Informa and we will be updating the headline statistics on a quarterly basis with Informa as our data partner as we move forward to keep all members up to date on the financing landscape for UK biotech businesses.

Foreword from Informa Pharma Executive Editor, John Hodgson

The BIA has a laudable ambition to create a sustainable biotechnology sector in the UK, one that produces companies that can compete for resources and markets with companies from other major clusters around the globe.

The ultimate proving ground for UK companies is the international stage: R&D must be world-leading, financing must be international and products must address the needs of global healthcare systems.

This report provides a snapshot of the competitive position of the UK's collective endeavour in biotechnology in 2016. It looks at early and later-stage finance bases available to UK firms and at the commercial and clinical outcomes that ensue as that capital is deployed. Over time, as Informa's multi-year partnership as data partner to the BIA progresses, serial snapshots of the same data parameters will provide a "stop-motion" profile of the way in which the UK's biotechnology profile is evolving.

The 2016 data indicates that the UK's venture capital base is robust relative to other European markets: the larger tranches of capital and late-stage rounds that life sciences companies need to convert research platforms and prototypes into products – the next level of intellectual property – are currently available more frequently in the UK than elsewhere in Europe. But it is still not clear that the UK venture capital supply for biotechnology is self-sustaining and dependable. The apparent generosity of 2016 has its roots in a few large and committed venture investors. Without them, any future picture might look quite different.

The influx of capital from China and elsewhere in Asia promises to boost the early funding picture, and encouraging external investment in the UK must continue to be a prominent part of any emerging post-Brexit strategy.

The amount of money biotechnology companies raised through London's Alternative Investment Market (AIM) was reduced in 2016 compared to 2015, in keeping with other public finance markets around the world. It is also clear, however, that AIM – as a junior market – also serves a mezzanine financing role: ambitious companies can list there initially and then re-list on exchanges such as Nasdaq as their finance demands evolve.

In clinical development, UK firms are at Europe's leading edge with multiple late-stage products progressing towards the market. The post-Brexit departure of the European Medicines Agency from London ought not to prove an obstacle to companies that already recognise the need to operate internationally. However, real success for UK biotechnology companies lies in transforming more experimental programmes into profitable products. That is what is needed to repay the faith of investors and to close the funding circle.

Currency rates

Fluctuations in currency exchange rates during 2016 largely associated with the referendum vote to leave the European Union compounded the difficulty of comparing biotechnology sector performances internationally.

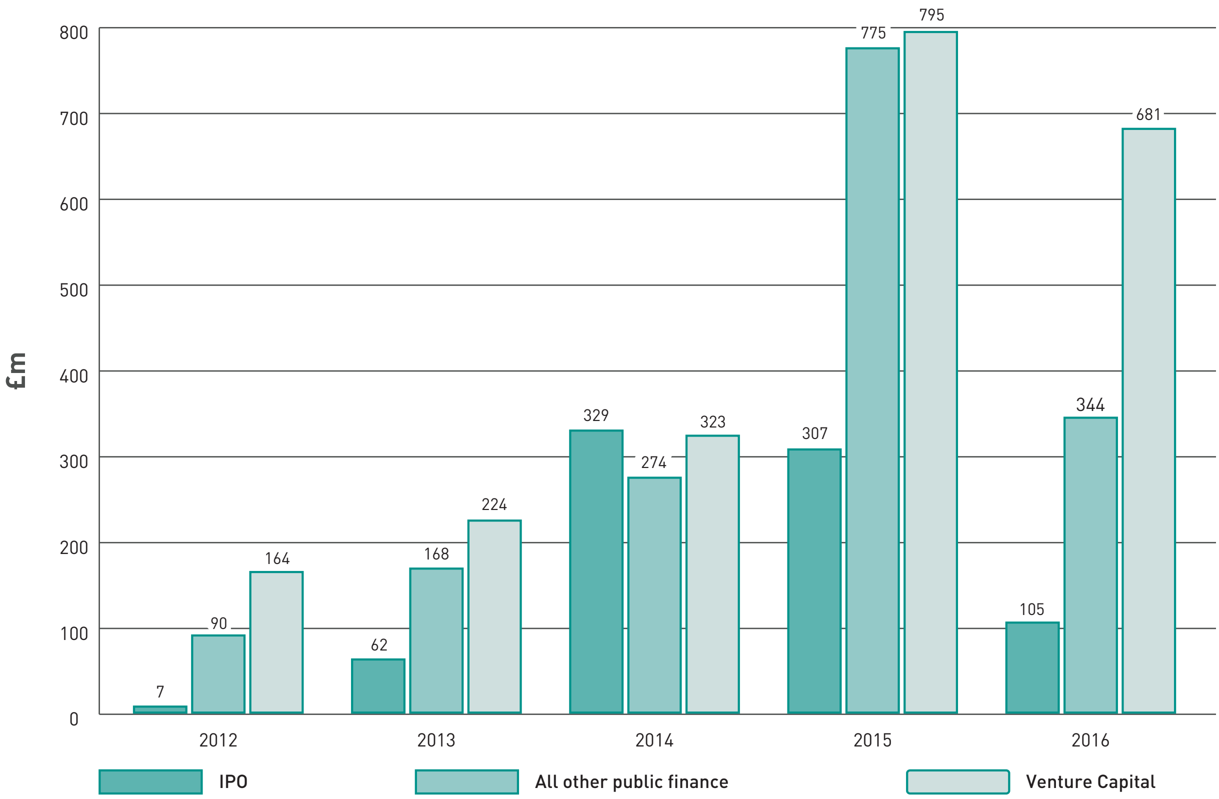
Throughout this report, individual UK company fundraisings within the UK are shown at their original sterling value. Individual company fundings denominated in other currencies have been converted into sterling using the average monthly prevailing rate at the time of the fund-raising. Annualised data were converted into sterling using average annual rates: £1 = $1.356 = €1.225 = CHF1.335 = DKr9.12 = SEK11.587. These and other annual rates are taken from www.ofx.com.

Overall trends for UK biotech in 2016

It was a challenging year for the public markets across almost all sectors as uncertainty over Brexit and the US election took their toll. It was no different for biotech, where coming off the back of the record breaking year in 2015, we saw a dip in IPOs and follow on funding. However, venture capital activity remained strong, with the UK biotech sector maintaining its European lead.

A total of £1.13bn was raised by UK-based biotech companies from private and public sources in 2016. £681m venture capital funding was raised, continuing the strong performance seen in 2015, when £795 million was raised. The lower IPO activity saw only £105m raised, compared to £307m in 2015. Finance from other sources was also hit by the challenging climate, with £344m raised in 2016 compared to £775m in 2015.

IPOs dip, but venture capital and secondary public finance remain strong in 2016



Source: Informa, Strategic Transactions and Scrip

PANMURE GORDON & CO

Freddy Crossley, Head of Healthcare, Panmure Gordon

The impact of the national and geopolitical narrative weighed heavily on the biotech market for equity finance in 2016 where there were only seven healthcare IPOs and a significant drop off in secondary fundraisings from the prior year. The outlook for 2017 remains similar, with only a single significant healthcare IPO in the first quarter and a surprise UK general election likely to cause a temporary deceleration in activity, albeit we expect a strong period of post-election activity that may last well into the second half of the year.

Performance in the Biopharma sector recovered over the quarter following a weak end to 2016 and the amount raised in secondary healthcare offerings in Q1 2017 did increase from Q1 2016. However, the median raised for each transaction decreased over the period, with lower activity levels observed from some of the traditional larger cornerstone investors.

More encouragingly for biotech companies, with the outlook for national and international growth looking sluggish, we are continuing to see investors look for outperformance and growth in an increasingly flat economic environment and identifying the healthcare sector as an area of outperformance. Amidst a small number of notable failures there have been some very encouraging performances for a number of biotech companies over the last 12 months, including Hutchinson China Medtech, Faron, Futura, Maxcyte and Summit, to name a few. Should this continue, an increase in capital is certain to follow into the sector.

We are continuing to see investors look for outperformance and growth in an increasingly flat economic environment and identifying the healthcare sector as an area of outperformance.

FREDDY CROSSLEY,
PANMURE GORDON

Venture capital funding

The UK venture capital picture has matured

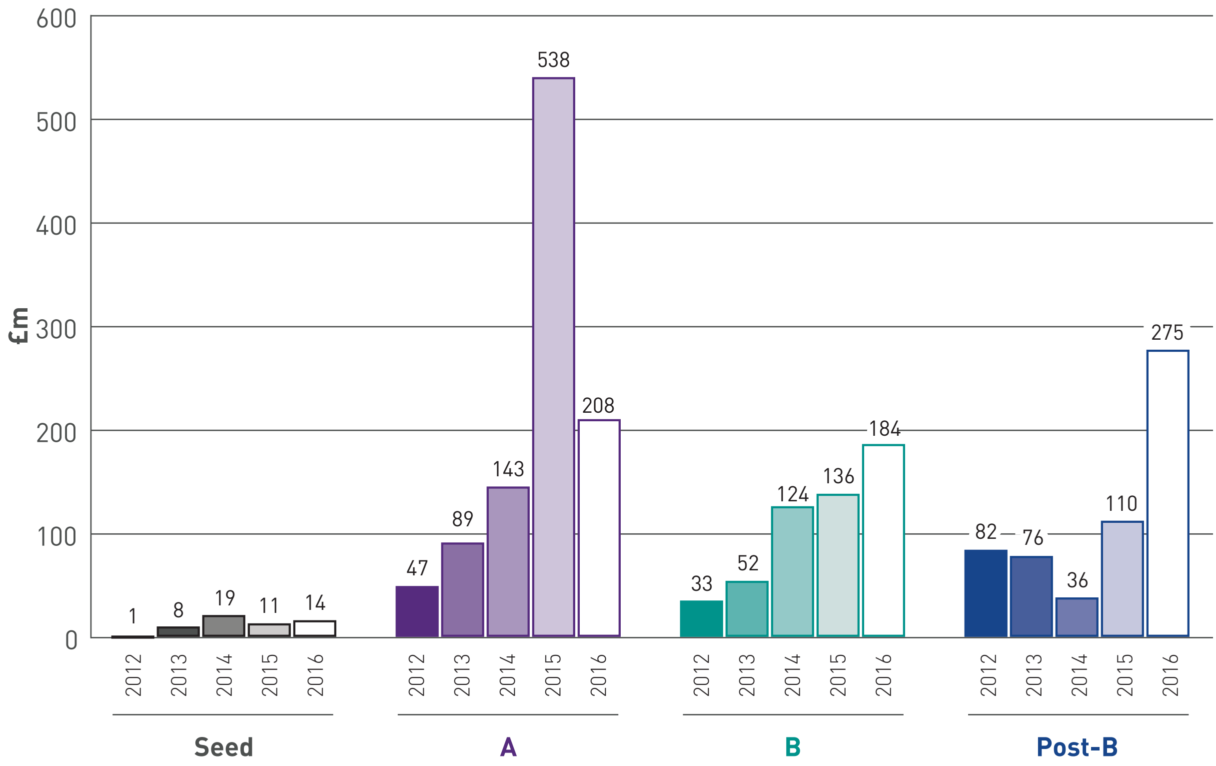
2016 was another strong year for venture capital funding and we have seen a welcome rise in seed funding and post-series B investment.

£275m was raised in post-series B fundraises, up from £110m in 2015. There was also an increase in series-B funding, with £184m raised, up from £136m in 2015. With the shift to later-stage fundraises, there was a lower series-A haul of £208m after a buoyant 2015, when £538m was raised. £14m seed funding was raised in 2016, following £11m the previous year which bodes well for the future.

The strong performance seen in 2015 and 2016 has been bolstered by the presence of the Patient Capital Trust and related funds managed by Neil Woodford. In 2016, Woodford's funds invested approximately £300m in venture capital in the UK, around half of the UK's total, and in 2015 they invested approximately £400m, around two-thirds of the UK's total. The funding environment is continuing to mature and diversify, with the UK's first debt-based fund, BioPharma Credit Ltd launching on the London Stock Exchange in March 2017, and the £1bn Syncona Ltd fund established at the end of 2016. These additions will provide a valuable source of funding in the coming years.

The potential loss of cornerstoning investment from the European Investment Bank and its European Investment Fund as a result of Brexit could undermine this strong position in the coming years. This could mean an increased role for the British Business Bank to support funding in the sector.

Early stage venture capital predominates, some drift to later-stage in 2016



Source: Informa, Strategic Transactions and Scrip

Kate Bingham, Managing Partner and EU Deal Team, SV Health Investors LLP

The UK VC industry is growing as the quality of science, companies and opportunities continue to increase. Despite the slowdown of the Nasdaq biotech market, aggregate VC funding into UK biotech companies in 2016 totalled [£681m] – close to the record breaking 2015 year. This illustrates the attractiveness of both early and later stage UK biotech companies. This funding comes from leading VCs from the US, the EU as well as UK-based specialist VCs.

The vote to leave the EU came as a shock to everyone in the biotech sector – an industry that relies on free movement of ideas and people. Any Brexit settlement that limits our ability to recruit entrepreneurial scientists, physicians and leading biotech executives would have a devastating impact on the growth and success of the UK biotech sector.

The loss of EIB/EIF funding may be important for some VCs investing in the UK, however the timescales to secure funding from EIB/EIF are long and complicated, which means this source of funding cannot be used for any critical path activities. In contrast, the UK's R&D tax credit payments and the competitive Innovate UK Biomedical Catalyst funding have to date been quick and efficient, and provide valuable leverage of VC investments.

Top UK venture capital rounds 2016

With the markets for public finance closing in 2016 for UK biotech, established private companies returned to venture investors for additional large tranches of capital.

Sequencing tool-maker Oxford Nanopore was the biggest fundraiser of 2016, attracting £100m in its sixth round. Kymab, DalCor and Mission Therapeutics also produced impressive results, raising £220.3m between them. There were also six series A raises worth between £13.5 and £31.5m, revealing the strong confidence in the commercial potential of UK science among investors.

Funds managed by or associated with Neil Woodford (Woodford Investment Management, CF Woodford Equity Income Fund, and Woodford Patient Capital Trust) were key catalysts in the large rounds for Oxford Nanopore, Mission Therapeutics, Kymab and Autolus. Chinese investors were also prominent in these large deals, with Kymab attracting the ORI Healthcare Fund and Shenzhen Hepalink Pharmaceutical, while GT Healthcare Capital Partners, a pan-Asian fund, became a new investor in Oxford Nanopore.

The UK's R&D tax credit payments and the competitive Innovate UK Biomedical Catalyst funding have to date been quick and efficient, and provide valuable leverage of VC investments.

KATE BINGHAM,
SV HEALTH INVESTORS LLP

Top UK venture capital rounds, 2016

Company	Deal Date	Round	Value (£m)
Oxford Nanopore Technologies Ltd.	December 2016	F	100.0
Kymab Ltd.	November 2016	C	81.0
DalCor Pharma U.K. Ltd.	April 2016	B	79.3
Mission Therapeutics Ltd.	February 2016	C	60
F2G Ltd.	June 2016	D	47.5
Autolus Ltd.	March 2016	B	40
Inivata Ltd.	January 2016	A	31.5
Artios Pharma Ltd.	September 2016	A	25
Orchard Therapeutics	May 2016	A	21
OxStem Ltd.	October 2016	A	16.9
Atlantic Healthcare plc	March 2016	A	18.7
Precision Ocular Ltd.	February 2016	A	13.5
Cambridge Epigenetix Ltd.	March 2016	B	16.4

Source: Informa; Strategic Transactions, Scrip

Dr Gordon Sanghera, CEO, Oxford Nanopore

Oxford Nanopore's Sequencing platforms enable the analysis of any living thing, by any person, in any environment; we are behind the only portable DNA/RNA sequencer, the MINION. 2016 was a year of commercial transition for us. We delivered improvements to our technology that progressed the performance tenfold in a year, so that it is now out-competing traditional technologies as well as delivering disruptive properties such as real time data analysis, ultra-long 'reads' and scalability from pocket, to point of care to laboratories. In 2016 we raised £100M to help us fund acceleration of our commercial operations.

A large proportion of this funding came from China, where we see enormous opportunity from a country that is adopting genome analysis technologies vigorously across research, industry and healthcare. This new funding coupled with the ongoing support of UK and other investors leaves us well placed to expand into China and developing economies. Our model is not traditional. All of our shares are ordinary, rather than traditional preferences that make sustaining a long term investment strategy difficult.

We are excited about the opportunities in 2017, as our technology ships to more than 50 countries and into thousands of labs worldwide, where researchers may be working in infectious disease, human genetics, crop science or cancer research. And these are paving the way for applied markets that can uniquely be served by real time, miniaturisable DNA analysis technology; healthcare, agriculture, environmental sensing and of course ultimately consumer markets.

kymab

Dr Dave Chiswell, CEO, Kymab

Kymab Group Limited ("Kymab"), is a UK based monoclonal antibody biopharmaceutical company with one of the most comprehensive humanised transgenic antibody platforms. In November 2016 we successfully secured a US$100m Series C financing bringing total funds raised to date to $220m. The Series C was led by new investors ORI Healthcare Fund L.P. ("ORI Fund") with participation by Shenzhen Hepalink Pharmaceutical Co., Ltd ("Hepalink"), as well as follow-on investments from existing shareholders: Wellcome Trust, Bill & Melinda Gates Foundation; Malin Corporation plc; CF Woodford Equity Income Fund and Woodford Patient Capital plc.

The funds will enable Kymab to advance its proprietary pipeline of first-in-class therapeutic human monoclonal antibodies, the first of which is commencing clinical development in 2017. We were delighted to welcome new investors ORI Fund and Hepalink, who support our goal of building Kymab into a sustainable global biopharmaceutical company with a pipeline of products in four main therapeutic areas: immuno-oncology; auto-immunity; haematology and infectious disease. ORI Fund and Hepalink bring deep experience of the pharmaceutical industry, particularly in Asia. Hepalink has a global reach for their products and have biologics manufacturing capability in the US. This investment will help us maximise the potential of the Kymab pipeline as we develop and commercialise monoclonal antibody medicines for patients worldwide.

Venture capital raised – rest of Europe and USA

UK companies received nearly £700m in venture capital in 2016, more than a third of the total venture capital raised in Europe and more than any other European country. That total puts the UK behind the US biotech clusters in San Francisco and Massachusetts but ahead of San Diego and all other European countries.

£1065m

The data also reveals that the combined venture capital of the UK and Switzerland is now 55% of the European total. If this trend continues it will mean that more than half of the biotech financing in Europe will be outside of the European Union post Brexit.

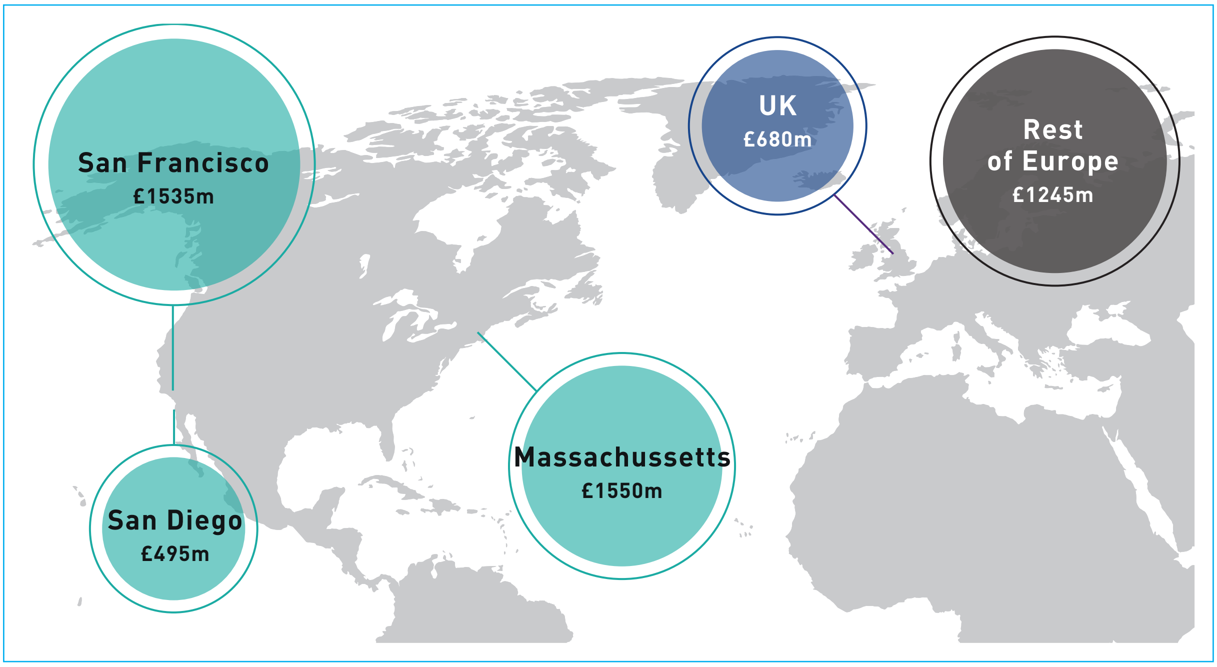
£860m

The UK had a higher proportion of late-stage venture capital investment (40% of venture capital raised was in post-B rounds in 2016) than any other European cluster, or indeed than the Californian clusters or Massachusetts. However, funding is more concentrated in series-C in the UK whereas we see companies raising money through a longer tail of successive rounds in the US clusters and 20% in Europe excluding the UK. So although later-stage venture capital is available in the UK environment it tends to arrive in large but rare tranches.

To successfully scale companies the UK needs a funding mechanism to enable late-stage venture capital-backed companies to get the investment that they need to scale-up. There is a lot of opportunity for investors but action is needed to grow the investment community. This must be a priority topic for the UK Government's Patient Capital Review.

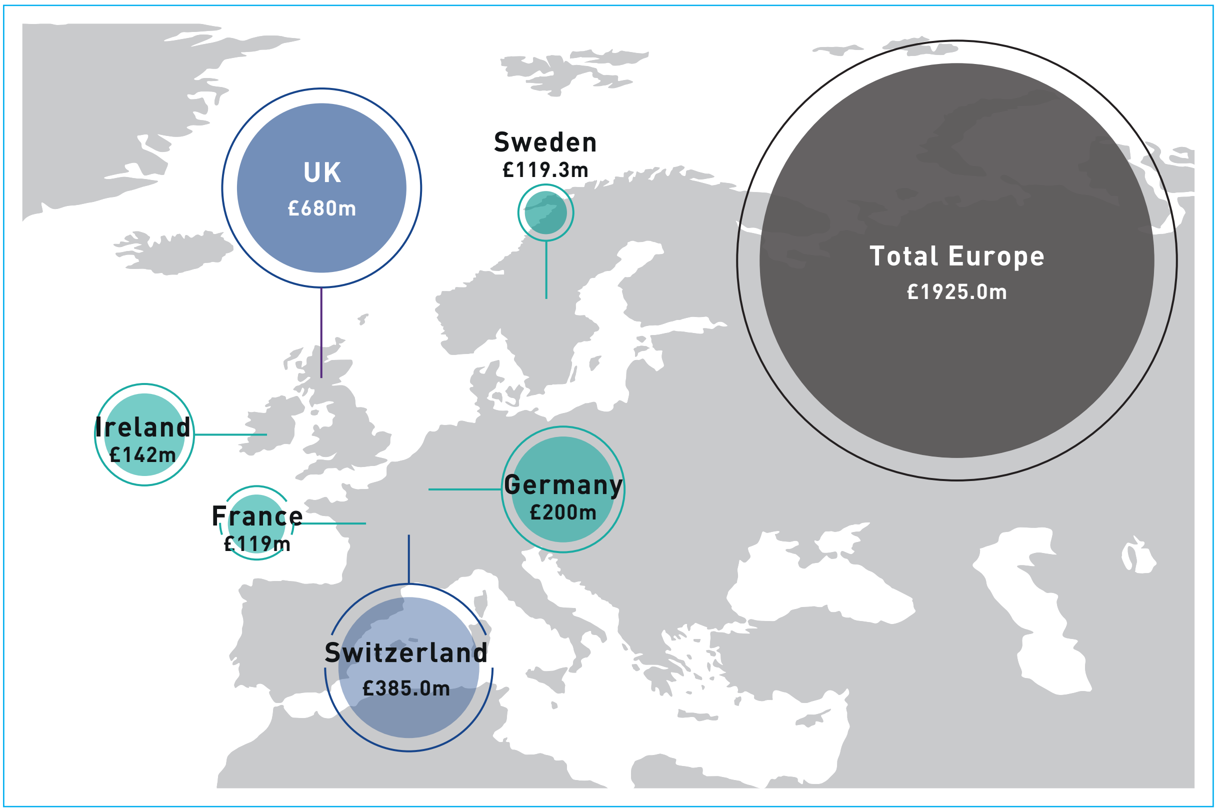
From a BIA perspective, the volume of seed and series-A round funding shows that the Biomedical Catalyst is having a positive impact on companies securing that all important early-stage funding. Companies such as Autifony, Atopix, Phormost, Mission, Atlantic Therapeutics, Physiomics, Adaptimmune and Immunocore received around £20m between them from the BMC and then went on to raise around £400 million in early stage venture capital in 2015–16. The BMC has also funded projects within more established companies such as Sareum, Oxford Biomedica, Cyclacell, Oxford Immunotec, Summit, C4X and F2G. It also suggests a bright future for the UK, providing the Government continues to provide the support they need through an active industrial strategy.

Venture capital raised (£m), UK, Rest of Europe and the USA, 2016



Source: Informa; Strategic Transactions, Scrip

UK proportion of European venture capital raised (£m), 2016



Source: Informa; Strategic Transactions, Scrip

Public markets

UK IPOs 2016

Markets cooled across the globe in 2016. Nasdaq biotech IPOs (for CA and MA) were down by 60% from $2.5bn in 2015 to $1bn in 2016. Secondary public equity finance was also down 35% from $9.9bn to $6.4bn. In the UK Alternative Investment Market (AIM) and main market, the value of biotech IPOs was down 80%, from £390m in 2015 to £78m in 2016. Secondary public finance was down 76%, from £2.2bn in 2015 to £543m in 2016.

Despite this general market cooling, there were still some excellent results for UK biotech firms. Shield Therapeutics raised £32.5m on AIM in February and four other companies raised over £10m each in their IPOs, with all but one (Motif Bio) choosing to list on AIM.

There was a Brexit effect on financing with uncertainty in the build up to the referendum, followed by a shock result leading to less activity in the middle quarters of the year. Five out of seven IPOs for UK companies happened before the referendum, with just two occurring towards the end of the year: Motif Bio's Nasdaq ADS offering in November, and Oxford Biodynamics in December. However, on non-UK exchanges, including Nasdaq, biotech IPOs were as common in the second half of the year as in the first.

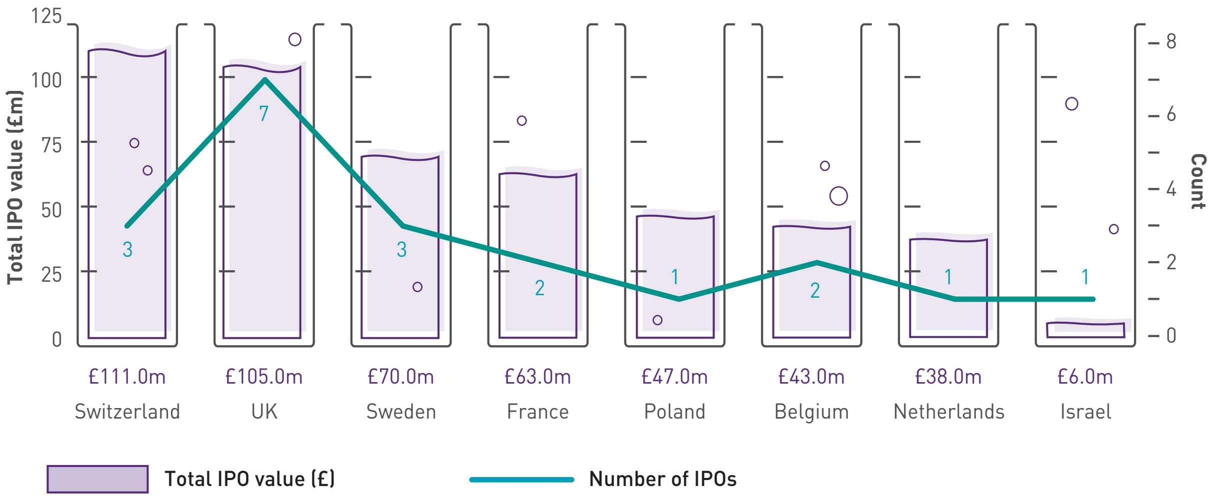
In fragile European markets (those having a maximum of two life science IPOs in a year), the value of 2016 was only 15% of the 2016 value. In more robust European markets (3 or more IPOs in 2015), 2016 IPOs were 31% of 2015 IPOs, very similar to California (but less robust than Massachusetts). The UK was one of the most robust European markets, with biotechnology companies able to raise 29% as much money through IPOs as they were in the record breaking year of 2015.

UK IPOs, 2016

Company name	Amount (£m)	Date	
Shield Therapeutics	32.5	February	AIM
Oncimmune Holdings	12.2	May	AIM
Mereo BioPharma Group	11.4	June	AIM
Motif Bio plc	10.6	November	Nasdaq
Amryt Pharma	10.0	April	AIM
Oxford BioDynamics	7.2	December	AIM
Salvarx Group plc	2.0	March	AIM

Source: Informa; Strategic Transactions, Scrip

European IPOs, 2016



Source: Informa; Strategic Transactions, Scrip

HALF THE IPOS
IN EUROPE
WERE IN THE UK
AND SWITZERLAND

Country	Total IPO value (£m)	Number of IPOs
Switzerland	**111.0**	**3**
UK	**105.0**	**7**
Sweden	70.0	3
France	63.0	2
Poland	47.0	1
Belgium	43.0	2
Netherlands	38.0	1
Israel	6.0	1

Source: Informa; Strategic Transactions, Scrip

Mereo BioPharma

Denise Scots-Knight, CEO, Mereo Biopharma

Mereo BioPharma is a UK-based biopharmaceutical company focused on the development and commercialisation of innovative medicines that aim to address unmet medical needs in rare and specialty disease areas. The company selectively acquires development-stage drug candidates with demonstrated clinically meaningful data from large pharmaceutical companies and rapidly progresses them through clinical development.

In July 2015, Mereo raised £76.5m from a private placement and acquired its initial portfolio of three mid-late stage clinical assets from Novartis; BPS-804, an orphan drug for osteogenesis imperfecta (brittle bone disease); acumapimod for AECOPD; and BGS-649 for hypogonadotropic hypogonadism.

In June 2016, Mereo joined AIM and raised a further £14.8m in a private placement to advance the development its portfolio. Since then, Mereo has made significant progress; acumapimod and BGS-649 are well advanced in Phase2/2b clinical studies and BPS-804 is set to enter a pivotal study. Mereo raised a further £15 million via a placing in March 2017, to expand the development of BPS-804 to include a paediatric Phase 2b study.

Mereo's AIM listing has given us more rapid access to capital and provided a platform to support the company's growth and aim of delivering treatments to patients with unmet medical needs in rare and specialty disease areas.

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DENISE SCOTS-KNIGHT,
MEREO BIOPHARMA

SHIELD THERAPEUTICS

Carl Sterritt, CEO and Co-Founder, Shield Therapeutics

Shield Therapeutics is a specialty pharmaceutical company focused on the commercialisation and development of late-stage, hospital-focused pharmaceuticals which address areas of unmet medical need. Shield's first marketed product is Feraccru®, which has initially been approved for the treatment of iron deficiency anaemia in adult patients with inflammatory bowel disease. This is accompanied by PT20, a phase 3 stage asset being developed for the treatment of systemic phosphate accumulation (hyperphosphatemia).

The past year has seen Shield transition into a fully-fledged, commercially-focused, specialty pharmaceutical company, set in motion by two key, simultaneous events of 1) a successful IPO and 2) receipt of a European Marketing Authorisation for Feraccru. The £32.5m raised at IPO allowed Shield to build the core of its sales and marketing team to sell Feraccru in Europe and with attractive pricing achieved in the UK and Germany, Feraccru's sales performance has started promisingly.

Shield's growth strategy remains based on Feraccru, with expanded geographic and label commercialisation of Feraccru in Europe in the short term, followed by a US launch in 2019 post an anticipated NDA approval. Ultimately, Shield aims to become a profitable, international, multi-product specialty pharmaceutical company and the deeply-experienced management team and Board have great confidence in, and ambitions for, the future.

Changes in global public markets for UK biotech

As sources of finances for young life science companies, all European stock exchanges remain relatively weak: European biotechnology firms often look across the Atlantic for major financings. In 2015, European companies (including the UK) raised $2380m on public markets: 54% of that came from US exchanges; another 10% came from European exchanges linked to Nasdaq or NYSE. And in 2016, when raising money on Nasdaq became more of a challenge, European biotech companies felt the squeeze first: they raised only one-sixth of the money on Nasdaq in 2016 that they had in 2015.

The difficulty of raising public money from national stock exchanges Europe also increased for European companies, although the contraction was somewhat milder: 2016 IPOs were at 36% of their 2015 level. In 2016, European companies raised nearly twice as much on European exchanges ($393m) as they did on Nasdaq ($212m).

London Stock Exchange

James Clark, Head of Tech and Lifesciences, Primary Markets, London Stock Exchange

For some years now, it has become increasingly clear that London Stock Exchange Group's growth market, AIM, occupies a unique place in global public markets for funding lifesciences companies, even attracting many from the US. Through AIM, life sciences companies have access to blue chip investors, who want to invest for the long term, in an environment regulated in a way to support quality high growth small and mid cap businesses. AIM supports life sciences companies throughout their growth journeys, not only at IPO, allowing them to come back and raise critical follow-on capital during the course of their public lives.

Public markets were much more closed to biotechnology offerings from European companies in 2016 than in 2015. Across Europe, companies raised around $634m in IPOs in 2016, a quarter of the total raised in 2015, with Nasdaq in particular closed for biotech offerings from European countries.

In this context, AIM showed resilience; there were seven biotech IPOs on AIM in 2016 more than in 2015; six of them for UK companies and one for US-based Maxcyte Inc. However, the closing of Nasdaq meant that big ticket IPOs were off the menu. While Summit Therapeutics, Novocure and Adaptimmune Therapeutics raised nearly $400m between them on Nasdaq in 2015, only Motif Bio with its $17m offering raised a Nasdaq IPO in 2016.

The value of Motif's IPO, which was accompanied by a simultaneous $8million private round, is likely to be in the access it gives to secondary equity or debt finance from US investors: GW Pharmaceuticals raised around £20m in its 2013 Nasdaq IPO and has returned to the markets four times since, raising over £400m in follow-on offering (including over £150m in 2016).

While the value of biotech IPOs on AIM in 2016 were at 110% of 2015 levels, values on other European exchanges fell dramatically: in France, money raised through IPOs on Euronext/Alternext were at 44% of 2015 levels; in Belgium, IPO takings fell to 10% of 2015 levels, and there were no biotech IPOs on Switzerland SIX market (Two Swiss companies IPOed on Nasdaq and one on Euronext Paris).

Justin Gover, GW Pharmaceuticals plc,
Chief Executive Officer

GW Pharmaceuticals is a UK-based biotech company dedicated to developing cannabinoid-based medicines, with a focus on disorders of the central nervous system, including epilepsy. The Company is NASDAQ listed, with its manufacturing and R&D facilities solely located in the UK, staffing over 300 employees. In July 2016, GW successfully raised $273.1m in an oversubscribed offering on NASDAQ, one of many follow-on offerings succeeding the NASDAQ IPO in 2013. The funds raised were predominantly focused on two aspects of commercialising Epidiolex® (cannabidiol), GW's lead product in development to treat rare and catastrophic forms of childhood-onset epilepsy:

1. Expanding the U.S. commercial operations infrastructure, and;
2. Expanding Epidiolex® manufacturing at GW's facilities in the UK.

Following positive Phase III data on Epidiolex® in a selection of severe, orphan, early-onset, treatment-resistant epilepsy syndromes, GW expects to file an NDA with the U.S. FDA in 2017 and the EMA in the second half of 2017. The recent successful financing has provided GW with the necessary capital to move forward with confidence in preparing to execute a highly successful launch, and to further progress its pipeline of innovative cannabinoid product candidates beyond Epidiolex®, which include compounds in development for epilepsy, autism spectrum disorders, glioma and schizophrenia.

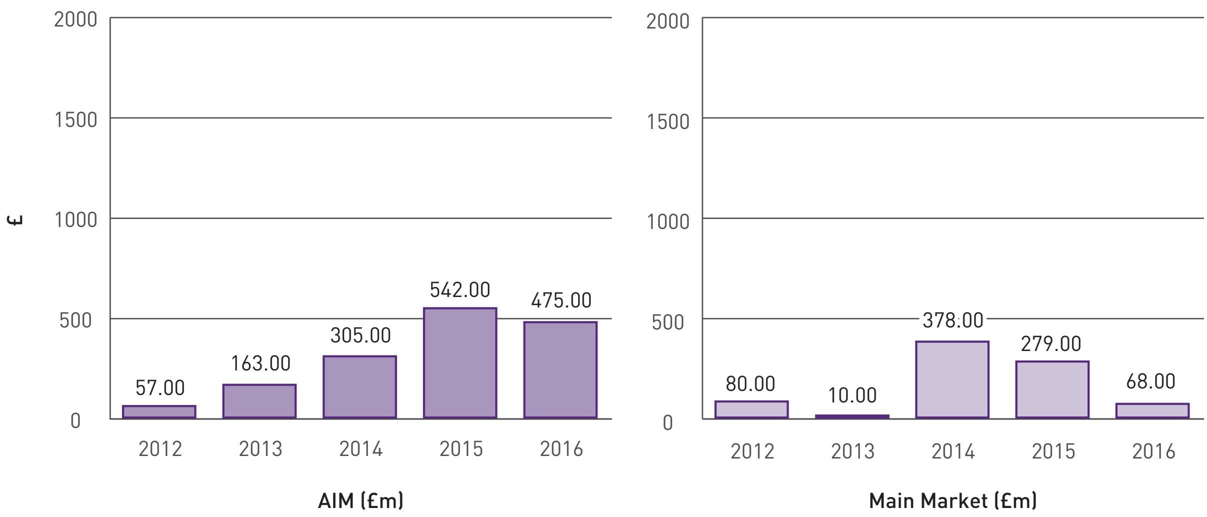
AIM persists as a source of follow-on finance, even when markets are more closed

The AIM proved a valuable source of follow-on finance for public companies. Over the past five years, AIM has provided biotechnology companies with nearly £3.7bn in finance: London's Main market has provided less than 30% of that level of money.

In keeping with global investment trends, the amount of money raised in follow on finances for biotechnology companies on AIM fell from a peak of over £1.94bn in 2015 to £475m in 2016. AIM was less robust than US exchanges such as Nasdaq but much more resilient than those elsewhere in Europe. [The Swiss SIX was an exception to that rule, managing one secondary public offering in 2016 compared to zero in 2015.]

Despite the downward shift in levels of finance from AIM, the number of financings through AIM for the biotechnology sector rose, from 130 (including 8 IPOs) in 2015 to 175 (including 7 IPOs) in 2016.

AIM persists as follow on finance, even when markets are more closed



Source: London Stock Exchange (londonstockexchange.com/statistics/historic/aim/aim.htm)

N+1 SINGER

Jens Lindqvist, Partner, Senior Research Analyst – Life Sciences, N+1 Singer

We believe that the UK public market, in particular the AIM, remains the most vibrant public market for small and mid-sized healthcare and life science companies in Europe. Over 2016 and 2017 to date, the Healthcare and Life Science sectors added nine new companies: ConvaTec, Widecells Group and Medica Group joined the Main Market, whilst MaxCyte, Mereo BioPharma, Shield Therapeutics, Creo Medical Group, Oncimmune Holdings and Oxford Biodynamics listed on the AIM. In addition, a number of companies joined the public market through reverse transactions. The aggregate market value of the nine companies at IPO was £5.74bn (£862m excluding ConvaTec), with the six new AIM entrants alone contributing £649m (up from £566m in 2015).

Encouragingly, the secondary market performance of the eight IPO stocks in 2016 has been strong overall, adding a further £1.26bn of equity value to date since IPO (22.8%), or £149m excluding ConvaTec (also 22.8%). We note that 2017 has started well, with the Medica Group share price up 18% since its IPO In March.

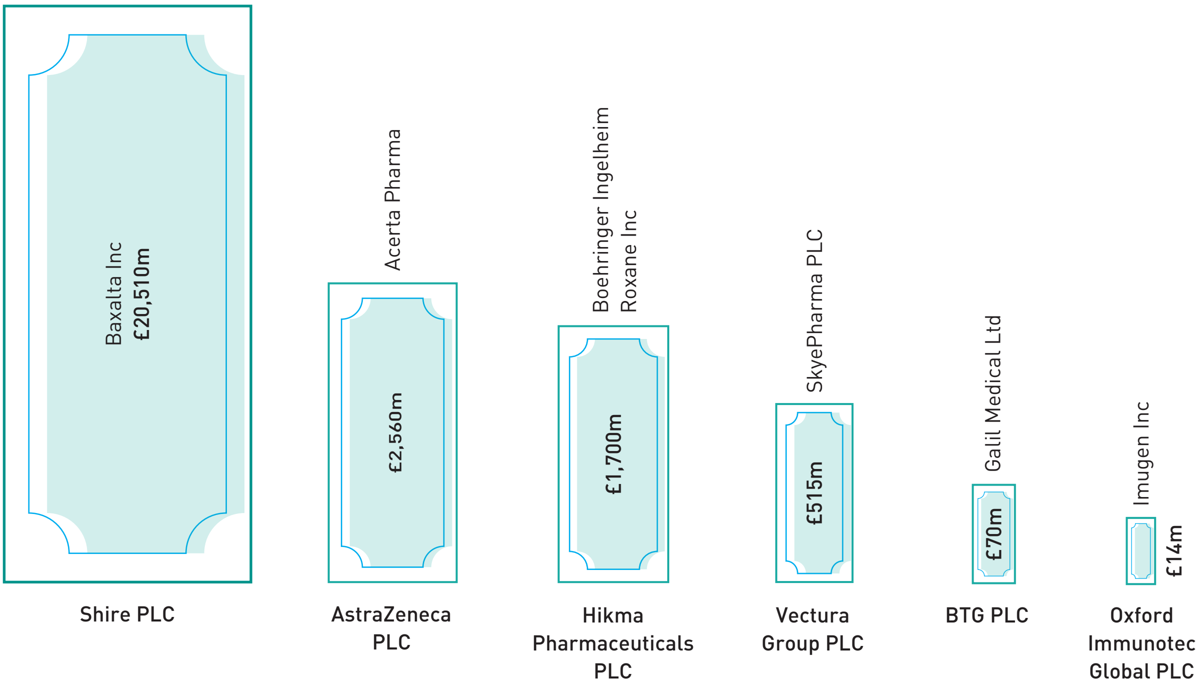
The AIM has continued to demonstrate its importance also as a platform for raising follow-on growth capital for healthcare and life science companies, in which we are delighted to have played a major role: in addition to the £99m total raised by six AIM companies at IPO in 2016, a total of £862m was raised across >200 further issues during the year. We look forward to the rest of 2017 with confidence.

Partnering and deal making

Selected acquisition by UK companies in 2016

By far the most significant M&A deal in 2016 was Shire's acquisition of Baxter International's biologics spin-out, Baxalta Inc. Initiated just 24 hours after Baxalta floated on Nasdaq, the deal boosts Shire's top line significantly and extends its reach in rare/orphan disease markets. Hikma's majority stake in the US generics business of Boehringer Ingelheim looks a smart move in the price-crunching environment of US healthcare. And Vectura's acquistion of SkyePharma provides consolidation in the UK drug delivery sector.

Selected acquisition by listed UK companies in 2016



Source: Informa, Medtrack

Acquirer	Target	Value (£m)	Date
Shire PLC	**Baxalta, Inc.**	**20,510.0**	**03.06.2016**
AstraZeneca PLC	Acerta Pharma	2,560.0	02.02.2016
Hikma Pharmaceuticals PLC	Boehringer Ingelheim Roxane Inc.	1,700.0	29.02.2016
Vectura Group plc	SkyePharma PLC	515.0	10.06.2016
BTG plc	Galil Medical, Ltd.	70.0	15.06.2016
Oxford Immunotec Global PLC	Imugen, Inc	14.2	01.07.2016

Source: Informa, Medtrack

Shire

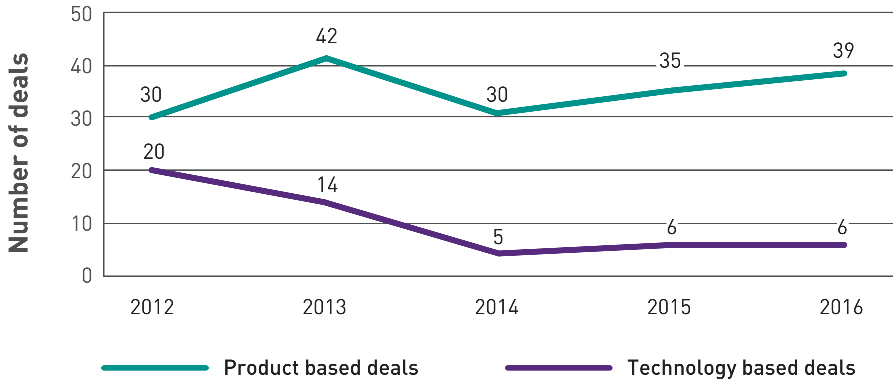
Dr Flemming Ornskov, CEO, Shire

We've long believed we have a unique opportunity to champion underserved patient communities by placing them at the centre of all we do. 2016 was a transformational year as Shire became the global leader in rare diseases with the acquisition of Baxalta, which added three new therapeutic areas including category leadership in haematology and immunology and a growing franchise in oncology. As a result of the acquisition, our therapies are now available in over 100 countries and with strong performance across our combined portfolio, we achieved record revenue of $11.4bn, almost double 2015's $6.4bn. Since successfully completing the Baxalta acquisition, we are ahead of plan on the massive task of integration and delivering promised synergies. We will maintain a sharp focus on rare diseases to deliver high impact for patients, sustained corporate growth and increased value for society.

UK is better placed to realise the value of its science base

The UK biotechnology sector has been an active participant in commercial deal-making for several years. However, the type of deals with which UK companies have been involved and the nature of their partners is changing.

People are owning their tech for longer which means that they are more likely to be able to scale up



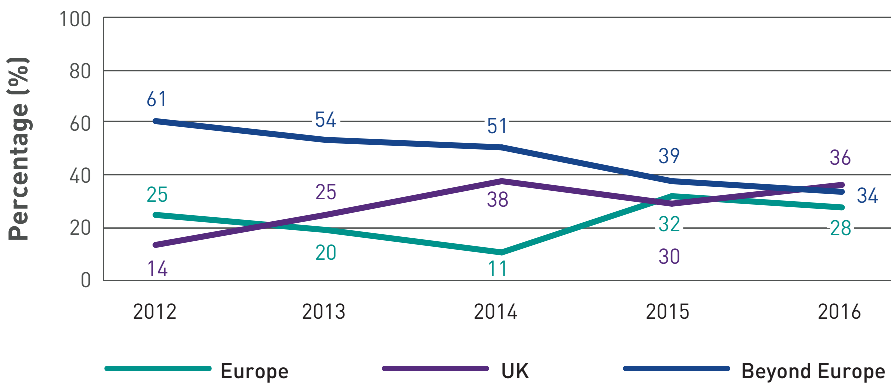
Source: Informa, Medtrack

One of the characteristics of early-stage companies is that they own exciting technological approaches through which, over time, they will develop products such as drug candidates. Such companies have two main opportunities to partner with other organisations: they can allow others to use their technology (by undertaking contract R&D or licensing the technology) or they can allow others to develop the products that arise from their technology (either by funding development or conducting it under license).

In the last few years, the spectrum of deals achieved by UK-based companies has changed (see figure above). While the number and proportion of product-oriented deals has increased, the number and proportion of technology-based deals is decreasing.

This reflects levels of increased maturity amongst the UK company cohort as UK companies have been able to deploy the relatively generous venture capital and public financing of the past few years to fund technology development “in-house” rather than relying on deals with external parties to support it.

We are seeing a greater knitting together of the sector with more deals being done with UK firms



Source: Informa, Medtrack

The move towards product-based deals and away from technologies seems to be associated with partners tend to be closer home – in Europe (especially in the UK) rather than in North America and Asia-Pacific territories (see graph above).

These changes in the deal making landscape are good news for the UK sector and show that the UK is getting better at retaining value further into the development chain.

Pipeline

The UK biotechnology sector has a robust clinical pipeline born of a long history as a venue for drug development. The data below, drawn from Informa's PharmaProjects database, shows that the number of drug products in clinical development (or in registration with the regulators) is higher in the UK than in anywhere else in Europe. The UK cannot afford to be complacent: it faces a strong challenge from France, Germany and the Nordic nations (collectively: Sweden, Denmark, Norway and Finland) in the development of late-stage assets (compounds in Phase III trials or registration). However, behind those late stage assets, the UK also has the strongest early pipeline of drugs in Phase II, Phase I or preclinical development.

Country	Preclinical	Phase I	Phase II	Phase III
UK	141	46	74	14
France	99	26	40	14
Italy	25	8	18	13
Germany	119	37	56	9
Denmark	31	12	15	7
Netherlands	54	13	21	7
Belgium	27	15	13	6
Sweden	67	17	37	6
Austria	25	15	10	5
Spain	45	9	23	3
Czech Republic	–	–	3	1
Finland	5	–	6	1
Ireland	13	15	5	1
Poland	10	–	1	1
Hungary	6	2	–	–
Portugal	16	2	3	–
Slovakia	1	–	1	–
Switzerland	–	25	24	12

Source: Informa, PharmaProjects

Note: This assessment of European drug pipelines sets aside the contribution of companies that already have existing products on the market. That means that the extensive development pipelines of the three major UK pharmaceutical companies – GlaxoSmithKline, AstraZeneca, and Shire Pharmaceuticals – are excluded, as are smaller firms such BTG, Allergy Therapeutics and GW Pharmaceuticals and Vernalis which have already launched a number of specialist products between them.

The future

BIA CEO, Steve Bates, OBE

Through 2017 the fundamentals of UK bioscience remain strong. As this report shows in terms of potential new therapies in the pipeline, the UK is by far the strongest in Europe. Looking to the future, I see big opportunity in the Government's Patient Capital Review to provide recommendations to improve key structural issues that hold back truly effective financing for our sector. Bioscience offers the chance for significant growth for the UK economy, and can be a pillar of our country's future economic wealth. Going forward the BIA will take this message to new investors, exciting them with the growth potential inherent in our sector and introducing them to the strength and diversity of our members as investment opportunities.

The BIA remains committed to making the UK the third global cluster for life sciences and we will work closely with government and relevant agencies to deliver this ambition. Our sector is an entrepreneurial and resilient community, excited by new challenges and staffed by great management teams used to working in a global environment. As we work through key questions about the regulation of medicine, our future relationship with the EU and access to the single market, science funding, intellectual property and how to secure the talent we need to grow our companies, we look forward to a constructive relationship with the new government putting life science at the heart of the UK's modern industrial strategy.

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About the UK BioIndustry Association (BIA)

Established over 25 years ago at the infancy of biotechnology, the BioIndustry Association (BIA) is the trade association for innovative enterprises involved in UK bioscience. Members include emerging and more established bioscience companies; pharmaceutical companies; academic, research and philanthropic organisations; and service providers to the bioscience sector. The BIA represents the interests of its members to a broad section of stakeholders, from government and regulators to patient groups and the media. Our goal is to secure the UK's position as a global hub and as the best location for innovative research and commercialisation, enabling our world-leading research base to deliver healthcare solutions that can truly make a difference to people's lives.

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