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Destination Europe

Despite playing an important role in public health, the European biopharmaceutical industry is facing a number of funding challenges. With investors increasingly looking abroad, new models and adaptation are required to boost local innovation and encourage market access

Poul Sørensen and Emil Pot at European Biopharmaceutical Enterprises

Europe has made significant advances in health outcomes over the past 60 years. The life expectancy of individuals has increased by nearly a decade, and effective treatments have become available for many of the most common infectious diseases. At the same time, biomedical R&D is breaking new ground in understanding patients' specific genetic characteristics, paving the way for targeted, more effective therapies based on personalised medicine. Europe needs to continue this trend, but it will require new models for innovation and adaptation on all levels across the healthcare delivery chain. This should not only lead to a better healthcare system for European citizens, but also to a more cost-effective approach.

The biopharmaceutical industry plays a strategic role in Europe's public health, medical research and economy. While the sector comprises mostly small companies, their contribution to Europe as a whole is considerable: 20% of molecules on the market and 50% of those in the pipeline are biotech ones; 325 million patients have now

benefited from biotech-derived medicines; and the economy is boosted by a total of 1,883 companies, 48,330 jobs and more than $2 billion invested in R&D every year by the sector (1).

Coordinating Research

The continent has a long history of research, with many centres of academic excellence, and numerous scientists and clinicians making major contributions to the advancement of medicine and medical practice. Yet steeply rising development costs, concerns about the affordability of treatments, and access to treatments themselves have become the most problematic issues facing the healthcare ecosystem today. However, future healthcare concerns will not be solved by reducing costs of therapies. New models and adaptation in regulatory processes all the way to market access are needed, if challenges are to be met and innovation encouraged.

Coordinating nationally fragmented policies and creating a pan-European R&D agenda are essential to improving critical mass and innovative competitiveness, while ensuring a viable, vibrant European healthcare infrastructure. The region should also strengthen its intellectual property (IP) law with a unitary patent covering all of its markets, making patent protection affordable for small-medium enterprises (SMEs) and more competitive with other key markets. A strong IP position is essential for attracting R&D investments in the EU, as well as starting collaborations with other companies to enable successful commercialisation of biopharma products.

Meanwhile, networks and collaborative research establishments – originally seen as a supplement to innovation – are now being viewed as essential. This trend acts on greater exploitation of the links between fundamental and translational research, as well as the creation of innovation development partners to progress products at faster speeds to reach the market. Europe has developed few bioscience networks that can compare to those centred on world-class academic institutions, such as those in the US. There, establishments like the National Institute of Health have played a pivotal role in both fostering excellence in academic research and shaping the innovation agenda surrounding key health priorities.

Sluggish Output

In order to pursue the EU's ambition (as described in the Lisbon Treaty) of investing 3% of GDP in R&D, Europe must champion excellence in academic research, encouraging an open and collaborative R&D model and the further development of scientific skills. However, this 3% target has been consistently missed, requiring a renewed focus on basic science combined with entrepreneurship. Europe must recommit to excellence, and create an environment that encourages innovation and attracts high-quality investment – either Europe invents the solutions of the future, or will have to import them.

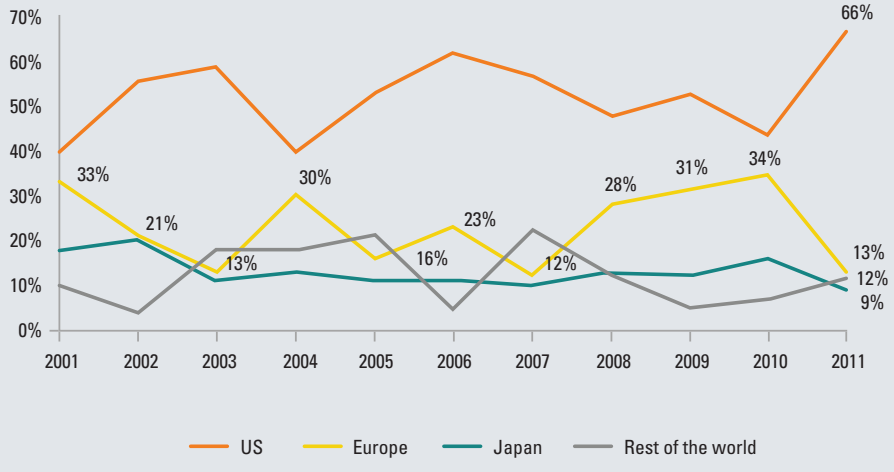
At present, the organisation, governance and funding of basic biomedical research is being managed through a range of independent, fragmented and broad-based programmes at both national and European levels. Despite some excellent initiatives – for example, the Innovative Medicines Initiative (IMI), Horizon 2020, SME instrument and InnovFin – the reality is that, in the biomedical sector, Europe is falling behind the US, and is facing a steep drop in the launch of new active substances (see Figure 1) (1).

The financing of US companies totalled $25 billion in 2013, compared to just $5 billion for European companies, going hand-in-hand with the number of people they employ (2). Clearly, Europe is lagging behind in many areas of biomedical research, leading to a loss of competitiveness.

In 2010, European governments invested just 0.07% of GDP in health research, in contrast to the 0.24% invested in the US. According to *Nature Biotech*, 50% of new biologics in orphan indication medicines sold in the US originated from European biotech companies (3). The reasons for this can be many, but it is certain that this trend is due to lack of European capital for risky and expensive late-stage funding.

The number of European biotech start-ups that succeed to complete the entire cycle, from the pre-seed phase through to going public, remains low compared to the initial public offerings (IPOs) recorded in the US. This year there were 28 public financings on European markets, versus 43 IPOs in the US in 2013 (4-5).

Figure 1: Launches of new active substance

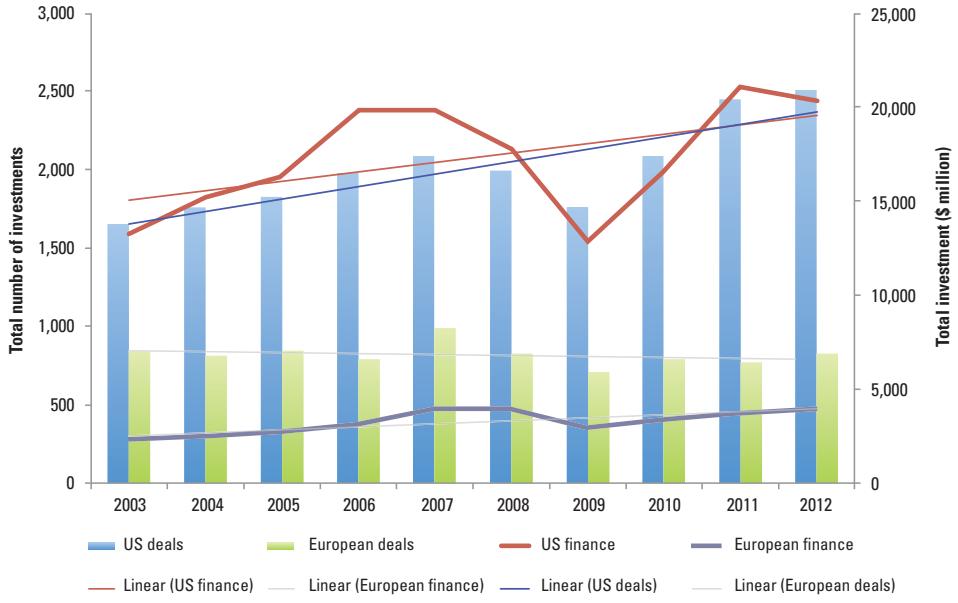


Lagging Behind

Out of the top 100 centres for medical research, 56 are in the US and only 37 are European. In fact, eight of the top ten academic centres are American, and Asia is quickly catching up. Europe has consistently lagged behind the US as the place where innovators want to test and launch their products first. In an increasingly competitive climate, this does not send a supportive message to potential investors.

Although the number of firms on both sides of the Atlantic is comparable, the US biotech industry employs twice as many people; spends three times more on R&D; generates twice as much in total revenue; and the public companies have a market cap four times that of European businesses (6). These illustrations, and the fact that most European biotech companies are SMEs – 70% of the 2,000 healthcare biotech firms in Europe have less than 50 employees – points to the desperate need for efficient networks of innovators from science, business and public institutions to facilitate funding and enablement.

Figure 2: Annual totals: US and Europe compared



Funding Gaps

Today, three major funding gaps relating to the different stages of product development can be identified:

- Obtaining funding for platform development and preclinical development (early-stage)
- Acquiring funding for Phases 1 and 2 clinical trials (mid-stage)
- Gaining funding for Phase 3 clinical trials, manufacturing and marketing (late-stage)

Once the first phase of research is finalised – which is usually conducted by universities – results are often not taken to the next level for additional testing due to lack of funding. This is generally referred to as the first funding gap. However, beyond this stage, during the seed and start-up phase, SMEs face the second funding gap, making it difficult for researchers to continue developing assets.

Besides these, more focus needs to be put on the third funding gap, which occurs when biotech companies are looking for support in financing their Phase 3 clinical trials. As these studies are much more expensive than Phase 1 and Phase 2 clinical trials, there is limited financial possibility within the EU region to fund these critical Phase 3 trials, referring to the fact that only $5 billion of investment was available to European biotech companies in 2013. As a result, Phase 3 products are often out-licensed to the US or, instead, American businesses acquire companies developing these products. This represents a considerable leakage of innovation and jobs (in the later stage of development) to the US, leading to poor exit opportunities for investors and creating a decreasing appetite to invest in European-based businesses (see Figure 2). This needs to be prevented by the aforementioned measurements, and further by financing possibilities such as risk-sharing funding schemes like Innovfin.

One of the main reasons for the challenges in Europe is down to the regional lack of venture capital firms specialising

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in life sciences. Whereas the US accounts for two-thirds of the total venture capital investments in the sector, the share of EU member states is only 20%. Therefore, the biopharma industry in Europe currently faces:

- Limited financing mechanisms and resources for late-stage development
- A lack of sufficient dedicated biopharma venture capital funding and specialist institutional investment
- Restrictions to institutional investors, the type of investment they can make and their exposure to territories outside their domestic markets
- Minimised exit opportunities for biotech investors resulting from a failing capital market

Working Together

There has been a paradigm shift towards generating innovation, meaning that all stakeholders need to work together much more closely – all the way from the lab to the pharmacy shelf. Greatest biomedical output in Europe comes from those countries where strong and dedicated biotech clusters have been established. These clusters – such as the Medicon Valley in Southern Scandinavia and the Flanders Biotech Valley, Belgium – do not only link academia and industry, but consider multidisciplinary application of skills as key. Innovation leaders have been able to connect together local finance and investment firms, human resources and skills for entrepreneurship, as well as open research facilities, in a very efficient manner. As a result, numerous start-ups have been attracting capital from both local and foreign investors, creating thousands of new jobs.

Another good example of generating innovation is the IMI. A joint undertaking between the EU and the European Federation of Pharmaceutical Industries and Associations (EFPIA), the IMI aims to support a collaborative pharma R&D ecosystem in Europe, leading to quicker, more efficient discovery and development of better and safer medicines for patients. With a €2 billion budget, the IMI acts as a catalyst for partnership working, bringing together competing pharma companies to work with each other, as well as academia, regulatory agencies and patients' organisations, to tackle the major hurdles in medicine development.

Encouraging Investment

Although the European Commission provides some R&D funding, instruments for SMEs – Horizon 2020 and InnovFin – should provide more funding for single SMEs and late-stage clinical trials. This will be beneficial for both economic growth and the creation of new jobs in the EU.

If we want to aim for a similar innovation climate in Europe as in the US, we need to bring the level of R&D funding to that of the US, and further provide tax incentives and other motivations for attracting investments into innovative biotech companies.

Mobilising investment to boost innovative entrepreneurship on a European level is likely to provide substantial economic growth within the region. The establishment of the European Commission's €300 billion investment package may be directed to provide holistic relief for re-capitalising European markets. At the same time, the European Commission is encouraged to work alongside the European Investment Bank and European Investment Fund, as well as member states and the banking sector, to channel investment into innovative entrepreneurship. Meanwhile, risk capital availability should enable venture capital firms to go bigger in later-stage European funding rounds.

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About the authors

Poul Sørensen is Chair of European Biopharmaceutical Enterprises (EBE) Innovation, as well as its Funding Model Working Group, and Senior Vice President, Head of Strategic and Corporate Development, at Stallergenes – a global pharmaceutical company specialised in the treatment and management of severe allergic disorders. As a member of Stallergenes' Executive Committee, he holds responsibility for strategy, corporate and business development, in addition to its R&D project portfolio and alliance management. Poul holds an MSc in Molecular Biology from Aarhus University, and a PhD in Biochemistry from the University of Copenhagen, Denmark.
Email: psorensen@stallergenes.com

Emil Pot co-founded ActoGeniX in 2006 and joined the company as Director of Business Development, Legal and IP, before being appointed as General Counsel, responsible for all legal and IP matters. Previously, he held various business development and technology transfer positions at the Flanders Institute for Biotechnology and the University of Groningen. Emil is a member of the Working Group on Innovation and Funding Models at EBE, and holds a Law degree from the University of Groningen, The Netherlands. He is also a registered European Patent Attorney. **Email: emil.pot@actogenix.com**