

Pharmaceuticals and Medical Products

Biotech in Europe: A strong foundation for growth and innovation

European companies have an opportunity to play a stronger role in the industry by focusing on three factors.

by Franck Le Deu and Jorge Santos da Silva



© TEK IMAGE/SCIENCE PHOTO LIBRARY/Getty Images

Biotech is entering its next S-curve of growth as companies work to transform an array of innovations—gene therapies, stem-cell treatments, antisense DNA, siRNA,¹ CAR-T²—into powerful new therapeutic tools. Yet more scientific and technological breakthroughs are on the horizon. Europe’s role in this industry continues to grow, and the region leads in many ways. However, European companies have an opportunity to play an even stronger role in the growth of an important and dynamic industry.

This article shares highlights and reflections from our recent report on Europe’s biotech industry, *Biotech in Europe: Scaling innovation*, which focused on these three questions: What makes European biotech attractive, what financing does it need to fuel growth, and what should biotech leaders and investors do to succeed?

What makes European biotech attractive?

Our research indicated that three factors make Europe’s biotech market attractive to investors: strong hot spots across geographies, modalities, and therapeutic areas; powerhouse research and industry expertise to support basic science and innovation; and an abundance of high-caliber talent.

Hot spots in a fragmented landscape

Europe has a complex biotech landscape: hundreds of companies, multiple paths to innovation and financing, and marked differences among countries. To see through the complexity, we grouped approximately 1,000 European biotech companies into clusters by country, modality, and therapeutic area so as to map biotech hot spots and trace how trends in the region are shifting over time. This cluster map also shined light on the industry’s possible future directions.

Through this exercise, we found that European biotechs can be grouped into eight clusters. The three largest focus on providing services, on immunotherapies, and on brain and neuronal therapies. These together represent half of the biotech companies in Europe (Exhibit 1). In comparison, the United States focuses more on advanced-therapy medicinal products (about 20 percent of all biotech companies and all funding) than Europe does. Vaccines continue to be an area of focus in Europe; total local funding is approximately 15 percent of the overall total.

From a geographical standpoint, we found that Europe is increasingly moving at two speeds in biotech activity (Exhibit 2). Half of today’s biotech companies are based in France, Germany, and the United Kingdom. In fact, the United Kingdom has not only played a disproportionate part in multiple technologies and disease areas but also been home to 35 percent of all biotech start-ups in Europe since 2012. Belgium, the Netherlands, and Switzerland are also growing, although from a lower base. In contrast, biotech start-up activity in France, Germany, and Sweden has decelerated over the past few years.

In a majority of European countries, the newest biotech entrants focus on several modalities: drug-discovery tools and services, diagnostic and personalized care, contract research organizations (CROs), and contract management organizations (CMOs). Cell and gene therapies (CGTs) and immunotherapies are the fastest-growing areas—claiming some 40 percent of investment funding, these two have been the focus of almost a third of the companies founded since 2012. As for therapeutic areas, oncology and central nervous system (CNS) lead the field, with 42 percent of the companies and (as of the close of 2018) about half of the investment (Exhibit 3).

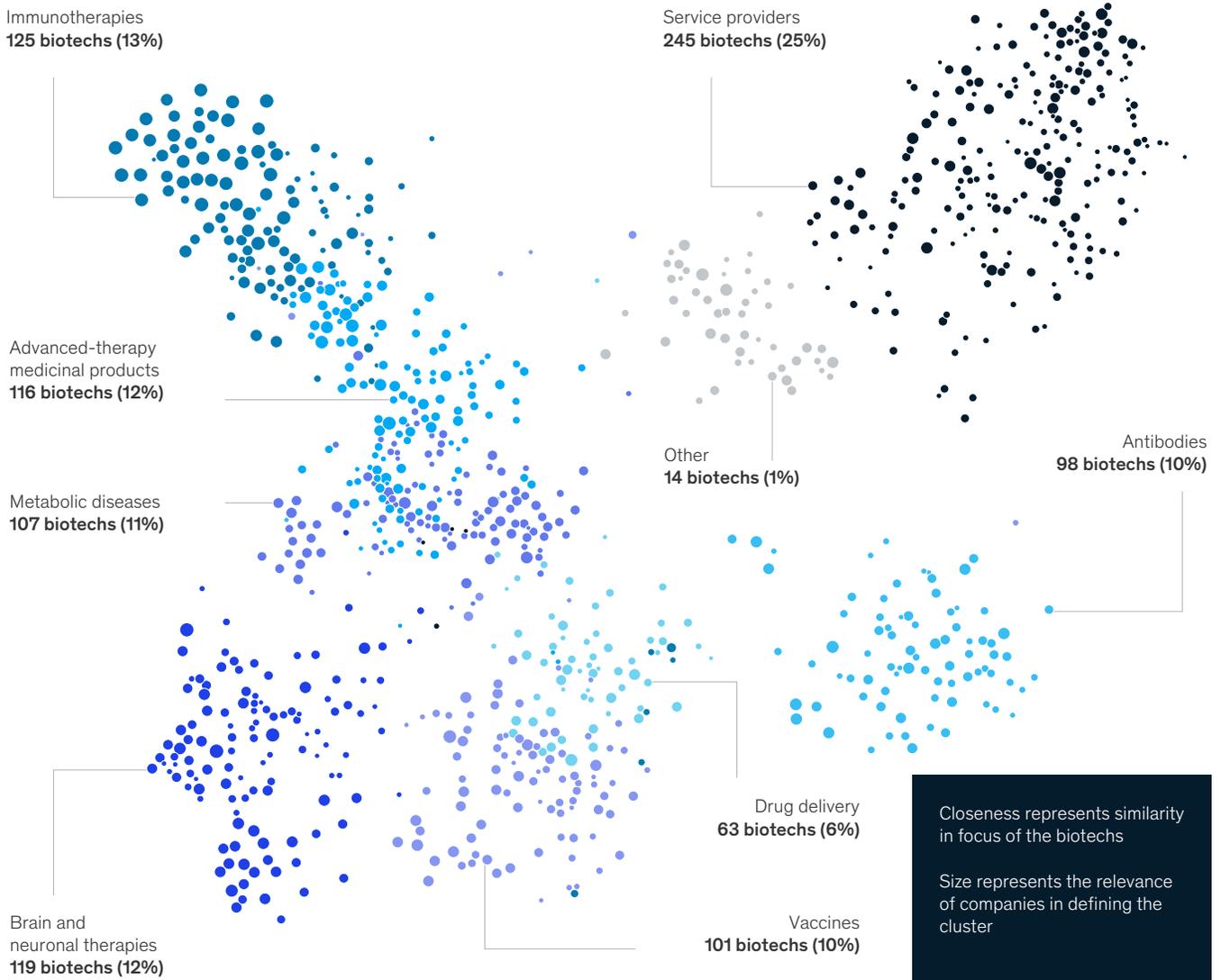
¹ Small interfering ribonucleic acid.

² Chimeric antigen receptor T cells.

Exhibit 1

Biotechs in Europe cluster around eight areas.

Breakdown of 988 biotech companies by area



Note: There is a 1–2% overall variation in the number of actual data points in the cloud representation, driven by the mechanics of the algorithm built into the McKinsey proprietary tool. The exact figures accompany the bubbles. For more information about the function of the algorithm, please contact the authors of this article.

Source: BioCentury, BCIQ February/March 2019; Pitchbook February 2019; Startup and Investment Landscape Analytics

World-class science and innovation

Europe has world-class research institutions, medical centers, and hospitals that provide a strong basis for sourcing and developing scientific and

clinical innovations. The region is home to 16 of the world's top 50 universities for life sciences and publishes roughly the same number of articles in top ten journals as the United States does and three

Exhibit 2

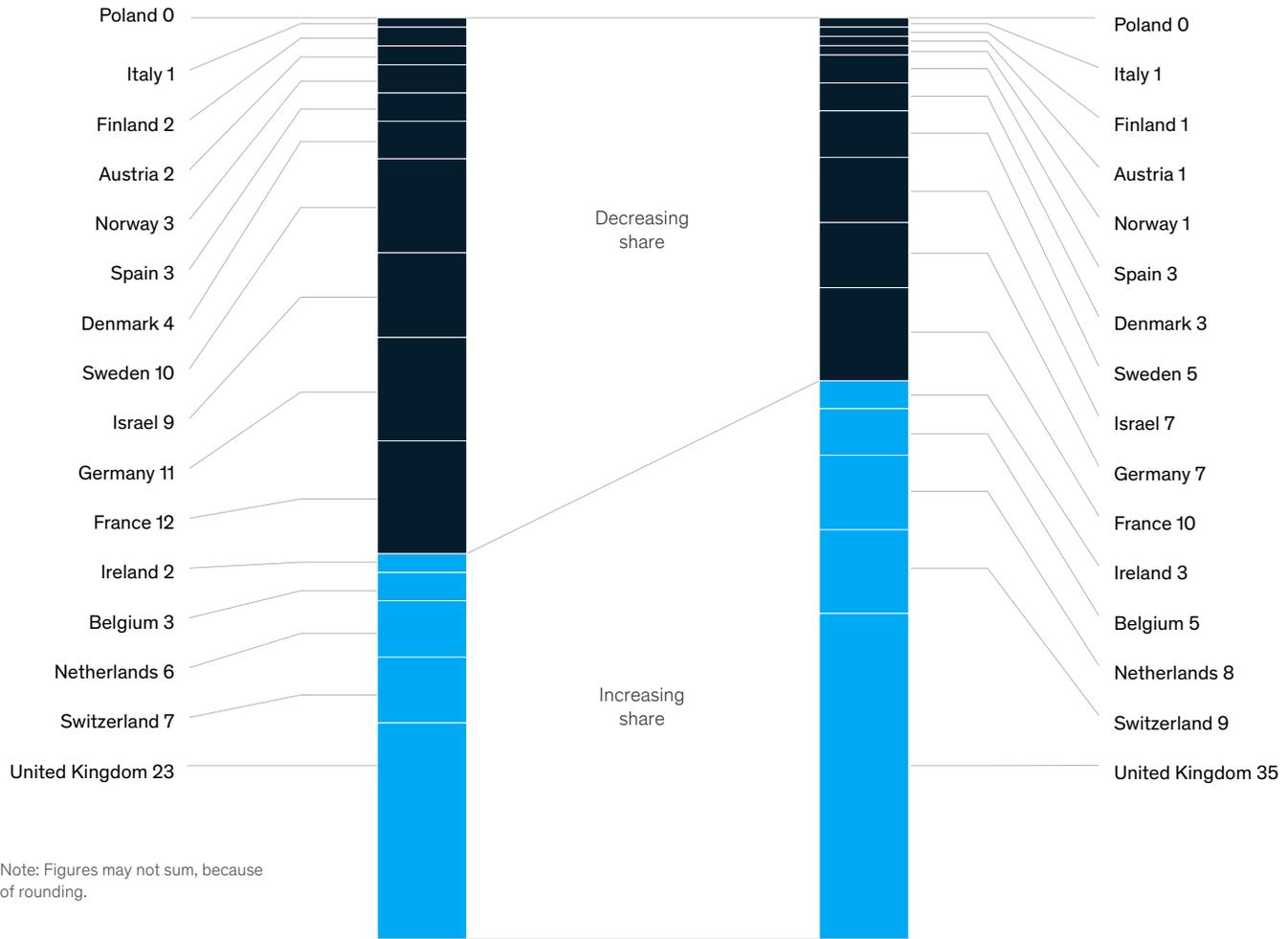
Europe is increasingly moving at two speeds in biotech activity.

Biotechs start-ups prior to 2012,

% of total (n = 677)

Biotech start-ups since 2012,

% of total (n = 311)



Source: BioCentury, 2019; Pitchbook, 2019; Pharmaprojects, 2019; PubMed, April 2019; Startup and Investment Landscape Analytics, 2019

times as many as China. However, Europe’s strength as a global powerhouse for scientific research and publication does not yet translate into patents for new medicines: the United States originates about three times as many as Europe does and China about nine times as many (Exhibit 4).

Further down the innovation chain, European companies were responsible for originating 13 percent of the new drugs produced by biotechs and approved by the US Food and Drug Administration in 2017 and 2018, while US biotechs were responsible for 78 percent. However, Europe’s

Exhibit 3

A few modalities and therapeutic areas dominate European investments in biotechnology.

	Focus	Leading centers	Baseline growth
Modality hot spots	Immunotherapy	Switzerland, United Kingdom	Belgium, France, Germany, Netherlands
	Cell and gene therapy	Netherlands, Switzerland, United Kingdom	Italy, Germany, Netherlands
	Service providers ¹	Germany, United Kingdom	Norway, Switzerland
Therapeutic-area hot spots	Oncology	Switzerland, United Kingdom	Belgium, France, Finland, Ireland, Netherlands
	Central nervous system	United Kingdom	Belgium, Denmark, Finland, Ireland, Sweden, Switzerland
	Metabolic diseases	Netherlands, United Kingdom	Italy, Germany, Netherlands
	Dermatology	Switzerland	
	Ophthalmology	United Kingdom	

¹Drug-discovery tools and services, and diagnostic and personalized-care solutions.

Source: BioCentury; Pharmaprojects; Pitchbook; Startup and Investment Landscape Analytics

share of new drugs could grow if its biotechs are able to attract more investment; they currently receive only 20 percent of the funding their US counterparts do. Europe also shows great promise in emerging treatment areas: 32 percent of all European projects in Phase III or registration for products are based on technologies such as antisense, viral vectors, and siRNA.

If we assess Europe's performance against that of the United States and index the latter at 1.00, early innovation (measured by publications and patents) stands at 0.73 in Europe. Late innovation (based on drug approvals and innovative candidates) is much lower, at 0.41. Clearly, Europe has some way to go to catch up with the United States in patenting commercially relevant innovations and turning science into drugs.

Top innovation and talent

Biotech experts score Europe highly on its overall level of innovation and quality of R&D talent—just a fraction behind the United States and well ahead of China. The talent base for research is strong however; for drug development, it is smaller but growing. Companies often struggle to attract and retain talented staff who have experience in biotech and in business development. Talent with experience in rare diseases and oncology is also thought to be in short supply. In addition, a third of our experts think European biotechs lack a sufficiently entrepreneurial mind-set.

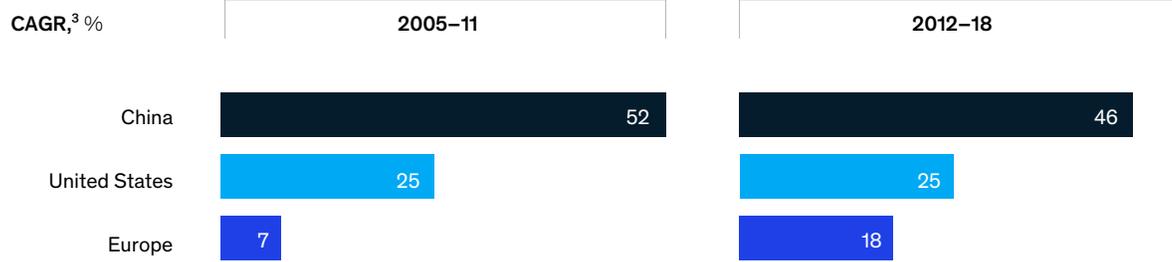
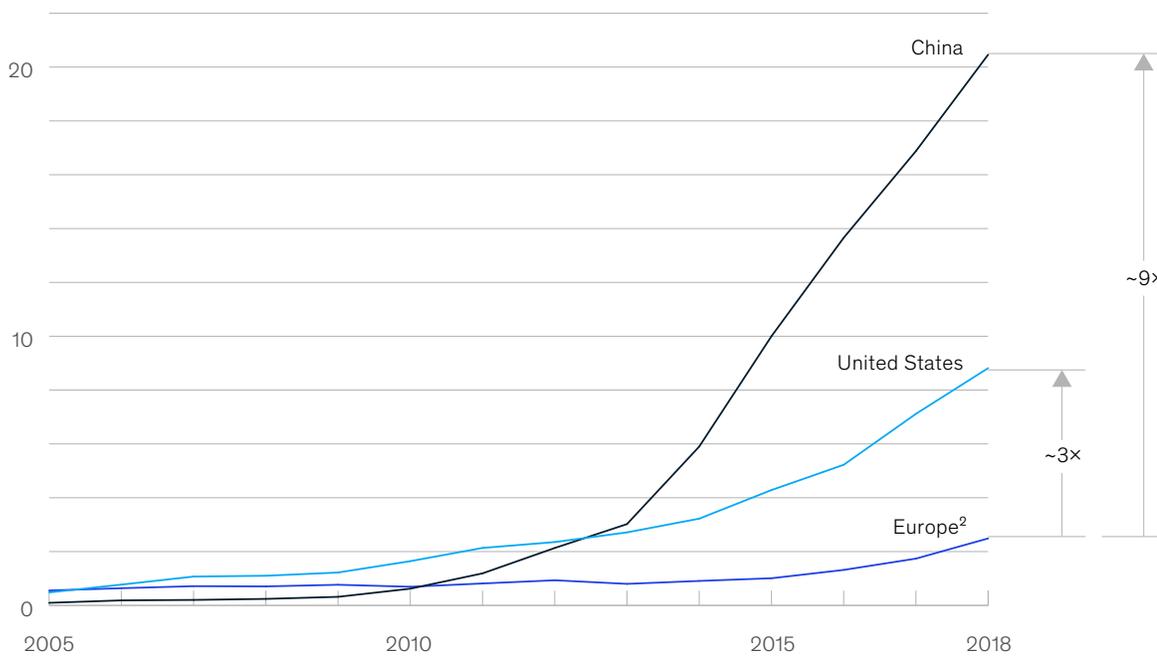
What financing is needed to encourage growth?

Our analysis showed that investment in European biotechs is increasing but that in late-stage financing,

Exhibit 4

The United States originates about three times as many patents as Europe does, and China about nine times as many.

Patent registrations for new medicines¹ by region, thousand



¹Number of patents registered, only 1st registration region counted.
²Excluding Russia.
³Compound annual growth rate.

Source: Chinese patent office; Innography database, March 2019 (including European Patent Office); US Patent and Trademark Office; McKinsey analysis

Europe lags behind the United States by a large (and still growing) margin. Other observations include these:

European biotechs have been good value for investors

By 2018, the average size of biotech M&A deals in Europe had grown to \$165 million—20 percent per annum growth since 2012, although deal

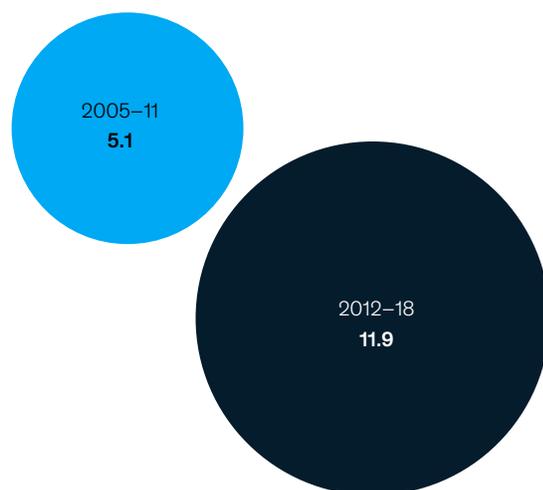
prices were still only 58 percent of the US level (\$284 million) in 2018. The reason is probably the stronger focus on business acquisitions and direct investment in the United States.

Return profiles have been advantageous in Europe: pre-money valuations are 30 percent lower than they are in the United States and structural costs 40

Exhibit 5

Total investment in Europe's biotech firms has more than doubled in the past seven years compared with the previous seven.

Total investment in European biotechs, \$ billion



Source: PubMed, April 2019; BioCentury, 2019; Pitchbook, 2019; Pharmaprojects, 2019; Startup and Investment Landscape Analytics

percent lower because of leaner, more cost-effective operations and lower salaries for life-science professionals. In addition, early-stage companies in Europe benefit from EU research programs, as well as grants, equity-free funding, and R&D tax credits from national governments.

Experts commented that European pharma companies tended to seek innovation outside Europe, often overlooking promising opportunities in their own region. However, European biotechs are starting to attract a broader pool of investors, including China's maturing community (now 3 to 5 percent of total investment in the European biotech industry).

Financing is maturing ...

Total investment in Europe's biotech firms has tripled over the past decade and more than doubled in just the past few years (Exhibit 5)—from \$5.1 billion (2005 to 2011) to \$11.9 billion (2012 to

2018). Of this new investment, 60 percent went to Belgium, Switzerland, and the United Kingdom. Germany's share was just 8 percent, down from 31 percent before 2012.

From 2012 to 2018, available venture capital (VC) is estimated to have tripled, to \$2.3 billion, thanks to the emergence of bigger, stronger European VC funds. Most experts agree that sufficient financing is now available for early-stage private-venture rounds. As business models evolve, deal types are diversifying beyond pure licensing, which accounted for up to 80 percent of deals in 2012 but for only 35 percent by 2018. The appetite for investing in late-stage drug development is growing, especially in niche therapies.

... but the late-stage financing gap with the United States is still growing

Despite these positive dynamics, the financing gap with US biotechs is growing: they receive almost five times as much private funding as their European counterparts do. The gap is especially marked for biotechs raising larger amounts in late-stage private-venture-financing rounds or on public markets. In fact, the ratios between early and late financing vary considerably from country to country in Europe: in several where the number of biotechs has increased (for instance, Switzerland), there is a strong underlying imbalance between early- and late-stage financing.

As for public markets, biotech IPOs are three times larger on Nasdaq than on European exchanges, so European biotechs tend to look to the United States for growth capital. Nasdaq offers greater capital depth and liquidity, with large institutional investors standing ready to invest in biotech. Almost 30 percent of private-venture investment originates in the United States. Since 2012, almost one in three European biotechs filing for an IPO (34 in number) have done so directly on US exchanges—on terms similar to those their US counterparts enjoy—with an average size of about \$80 million.

In addition, 98 percent of follow-on offerings by European biotechs have been on US rather than

European biotechs offer investors space for growth and momentum.

1 Build on what makes Europe attractive and ...

- Strong science and investment opportunities
- Opportunity to translate more innovation into products
- Early-stage funding, nondilutive financing
- Space to grow and momentum

2 ... think global

- Pitch against global competition, when it matters
- “See” the future of actual access and reimbursement across markets
- Focus on defined perimeters, where you can win (big)

3 ... prepare yourself

- Get sufficient data, plan well, be credible
- Get right “street cred” and entrepreneurs
- Attract talent you need, and be flexible

4 ... look east and west

- Forward looking, with clear path to the United States
- Build boards with the right global credibility and local networks, or “glocals,” to excite local investors
- Look east to China for long-term investors

European exchanges. However, few European biotechs have pursued investment from China, despite the interest its investors have shown in Europe. (Starting from near zero, by the end of 2018, investment had grown to more than 3 percent of total investment in both early- and late-stage European funding.)

Experts commented that instead of raising additional rounds of funding, some European biotechs proceed to IPOs prematurely, perhaps because of the limited capital available from relatively underdeveloped European capital markets. The same factor may also account for the tendency of European biotechs to exit via M&A when they need later-stage funding.

What should leaders and investors do to succeed?

We recommend these three priorities for leaders and investors to get the most out of innovation in biotech:

Work toward global competitiveness

Leaders should think, from the beginning, about how to differentiate their innovations and products for success in global markets. They need to look

ahead on, say, a ten-year horizon as they plan how to secure market access and reimbursement. Competitiveness begins with identifying what a company can offer that is unique, defining areas in which it can win on a big scale, and considering how to differentiate products enough to gain reimbursement from health systems. Rare, specialty, or orphan diseases with small trials, committed-patient organizations, and open-minded payers, for example, could offer opportunities for developing well-defined businesses serving niche segments.

Build a foundation for success

Timing is critical: biotechs need to make careful judgments about when they should go to financial markets. Some of the experts we spoke with warned against rushing to the United States for funding too early, since later rounds of investment or an IPO might be more appropriate. Investors looking for strong returns are more likely to back companies with experience, so European biotechs need to attract sufficient entrepreneurial and biotech talent, build credibility, and seek exposure to and explore networks outside Europe. Teams must plan ambitiously, execute well, and forge strong relationships with the right stakeholders. Given the shortage of experienced talent, biotechs must also

be flexible about remote working and comfortable with virtual teams to secure the right people—from beyond Europe as well as within it.

Look east as well as west

Nasdaq is the biggest source of public funding, so European biotechs with global aspirations will want to make it a part of their strategy to raise the investment they need to compete. To build global credibility, companies will also need to create a board and local networks geared to larger private rounds and a potential IPO. And as European biotechs seek investment, they should also look east as well as west, patiently building a presence

in China to understand an unfamiliar investor landscape, raise capital, and form partnerships that will enable them to thrive and grow (Exhibit 6).

European biotechs offer investors space for growth and momentum. With a strong science base that is less fully utilized than its US counterpart, they have ample opportunities to translate innovation into products. Armed with adequate funding to expand, they could achieve global competitiveness and success in coming years.

Franck Le Deu is a senior partner in McKinsey's Hong Kong office, and **Jorge Santos da Silva** is a partner in the Zurich office.

Designed by Global Editorial Services
Copyright © 2019 McKinsey & Company. All rights reserved.