LIFE SCIENCES SNAPSHOT

A Quarterly Report on Financing Trends

VC INVESTMENT SURGES IN EUROPEAN LIFE SCIENCE Q4 2021

orrick

Data provided by

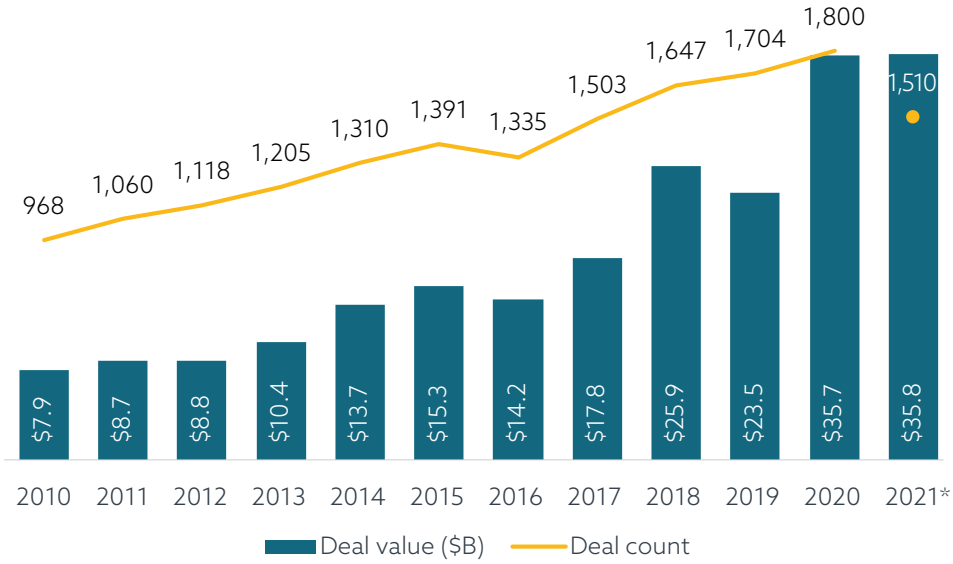
PitchBook

Key Takeaways

This edition of Orrick's life sciences publication series breaks down the key drivers of venture investment in the life sciences industry, which is on track to set all-time records this year. Key findings include:

- With three months to go, this year has already seen a record sum of VC invested in life sciences. 2020 saw $35.7 billion invested across 1,800 transactions; 2021 to date has seen $35.8 billion across 1,510 transactions. As the pace of dealmaking is slowing slightly, it remains to be seen if this year will also see a new record tally of completed financings.
- The median life sciences deal size increased for all stages of venture but seed, likely attributable to the unique risk profile of life sciences companies at that stage. Every other series has seen substantial increases, with Series B standing out. The median Series B financing size has increased by 51% year over year.
- Thanks to unprecedented macro drivers as well as record liquidity, investors are pushing valuations to record heights, with the median pre-money late-stage valuation surging to $75.0 million as of Q3 2021, relative to the high of $57.4 million recorded in full-year 2020.
- Uniquely bullish conditions in public markets have encouraged a record rate of initial public offerings (IPOs), raising $67.7 billion across 182 completed transactions in total. That is a new annual high, with a full quarter in 2021 to go.

Life sciences VC deal activity



Source: PitchBook | Geography: US
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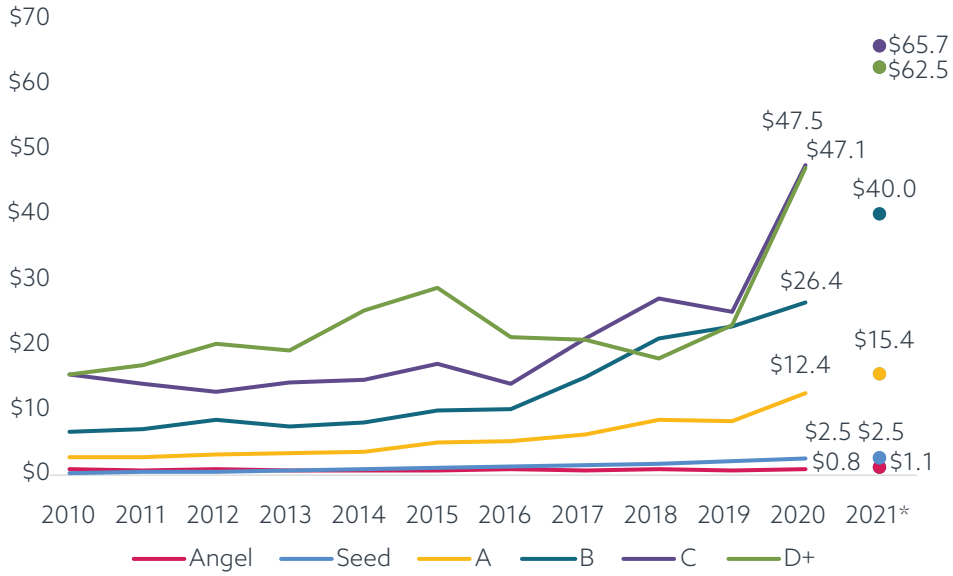
Median life sciences VC deal size ($M) by series



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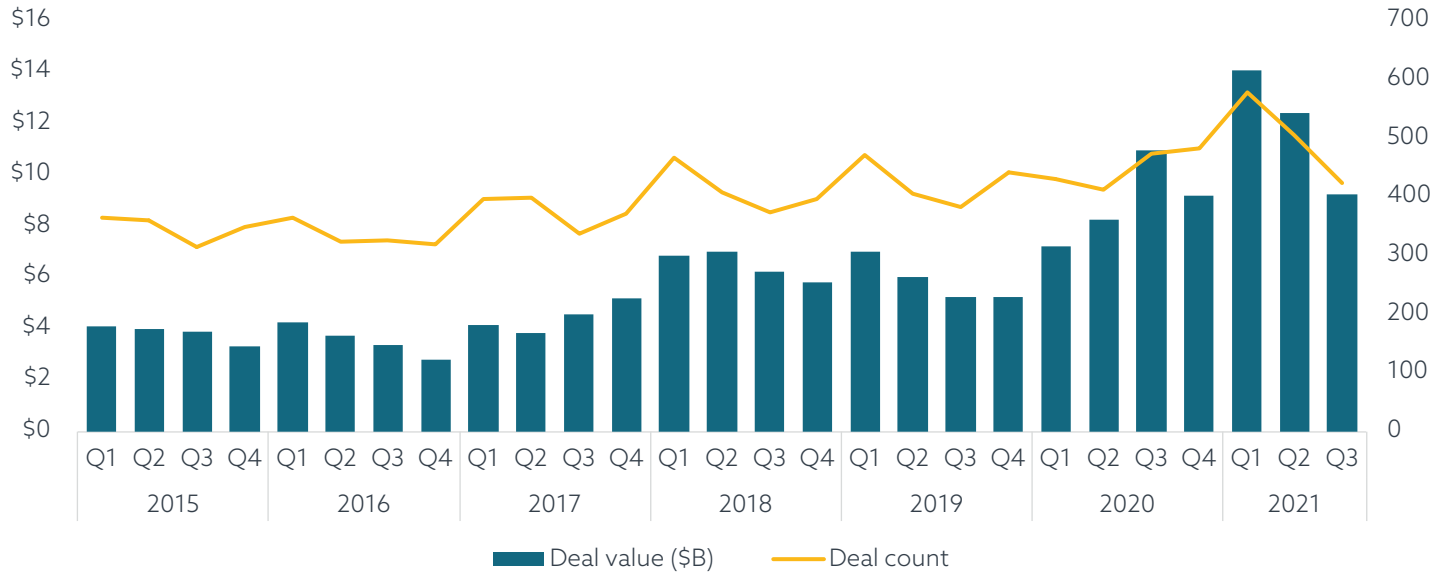
Market Analysis

Life sciences VC deal activity by quarter



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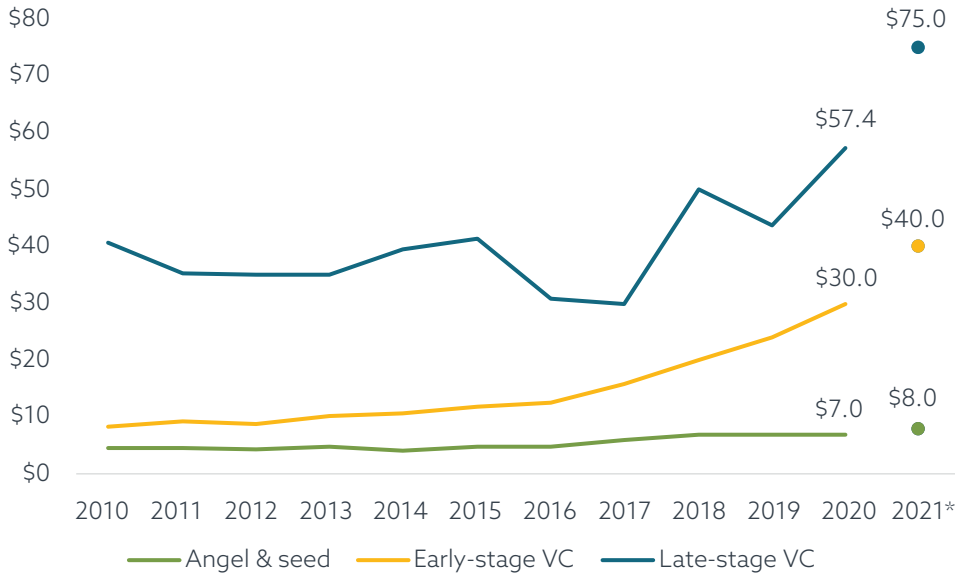
Even after a record-breaking 2020, this year is poised to set multiple new records in venture investment across life sciences. Already, a new high in aggregate VC deal value has occurred, with 2021 recording $35.8 billion invested across 1,510 completed financings through the third quarter. Although Q2 and Q3 of 2021 each recorded a lower deal count than Q1, the tally of completed financings remains historically strong. Armed with an unprecedented amount of dry powder, venture fund managers continue to push financing metrics to new highs as well, with record valuations and financing sizes across nearly every venture stage.

Median life sciences pre-money valuations ($M) by stage



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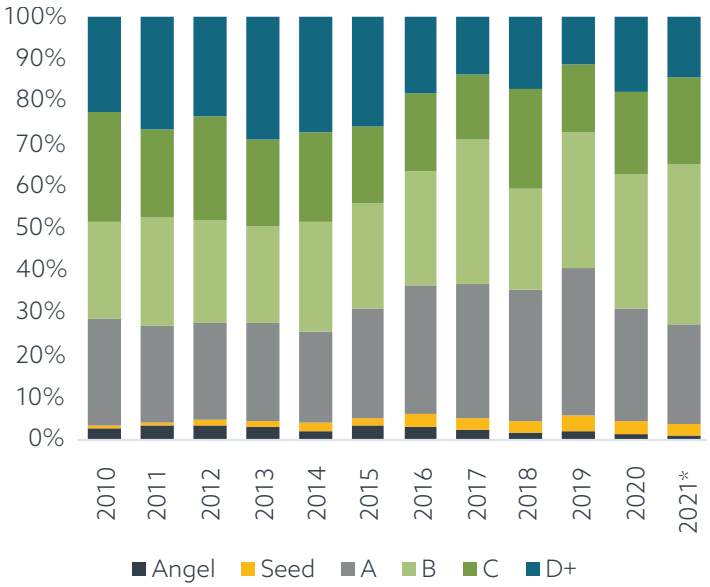
Life sciences VC deals ($) by series



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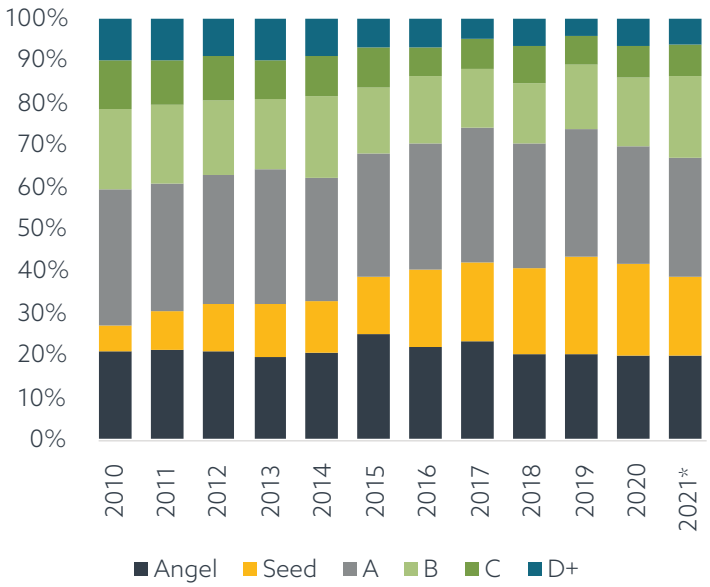
Life sciences VC deals (#) by series



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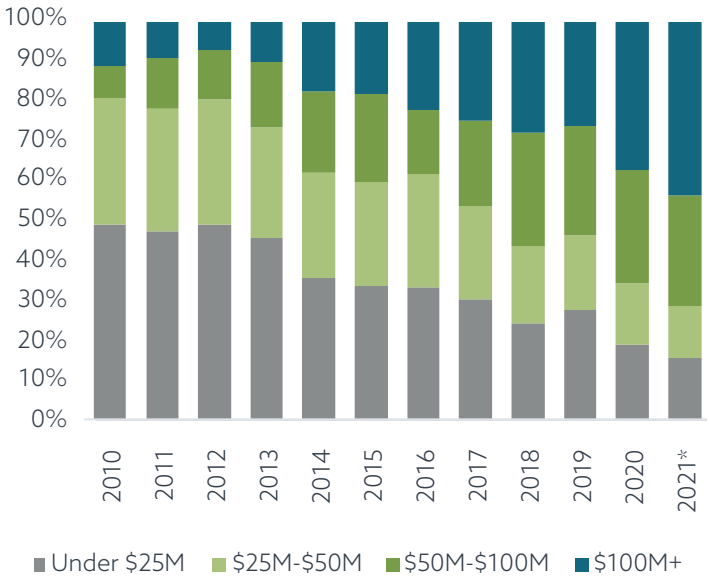
Life sciences VC deals ($) by size



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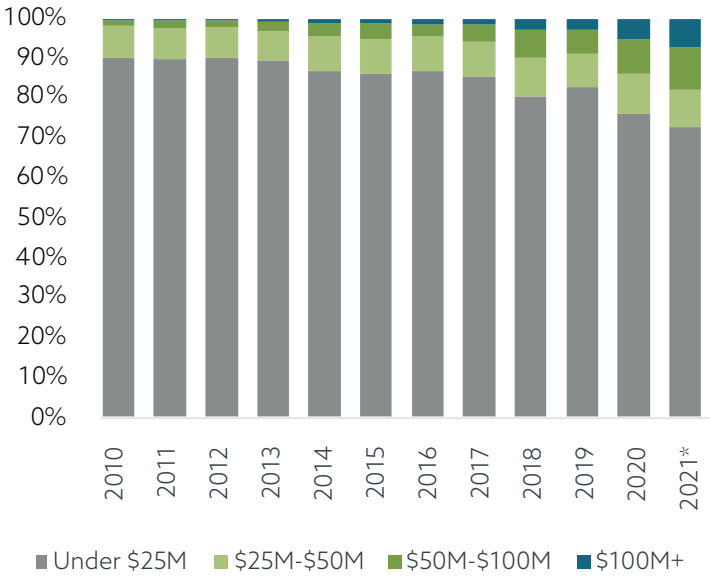
Life sciences VC deals (#) by size



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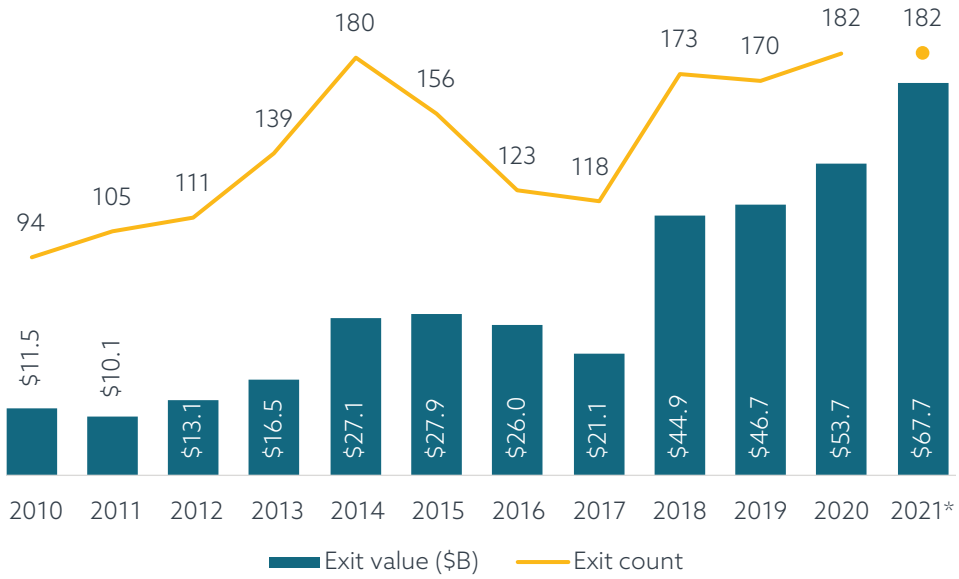
Market Analysis

Many of the drivers behind this record flood of capital are well known. Exponential improvements have been made in the cost of reading and writing DNA, which has formed much of the foundation for the most cutting-edge therapies and tools being developed today. Building on the genomic revolution, myriad applications were launched to better understand, create and deploy novel therapies. Significant market opportunities remain in the next waves of innovation, such as better integration of genomics into precision medicine for patient care, reduction in the cost of developing drugs for orphan indications, and improvement of the measurement tools in spatial biology. In short, building upon signature achievements in genomics to develop scalable therapies and tools in practical applications is the key focus of founders and investors alike for the coming decade in life sciences.

Market and economic factors also have underpinned the surge in investment into life sciences. Borne along on a bullish wave in public equities, 107 life sciences companies have gone public year to date, raising a record $45.7 billion. Most of them used traditional public offerings, but a record 14 companies listed via reverse mergers with special purpose acquisition companies. Overall, aggregate public financing has surged to $67.7 billion already this year. Such a profusion of liquidity bodes well for the ecosystem for years to come, as many of the most successful venture firms will use those exit opportunities to raise larger funds and keep investing, while many founders and employees will likely either launch new ventures or engage otherwise in the life sciences space. The recycling of capital will invigorate both start-up and investment activity throughout the 2020s.

Life sciences VC exit activity



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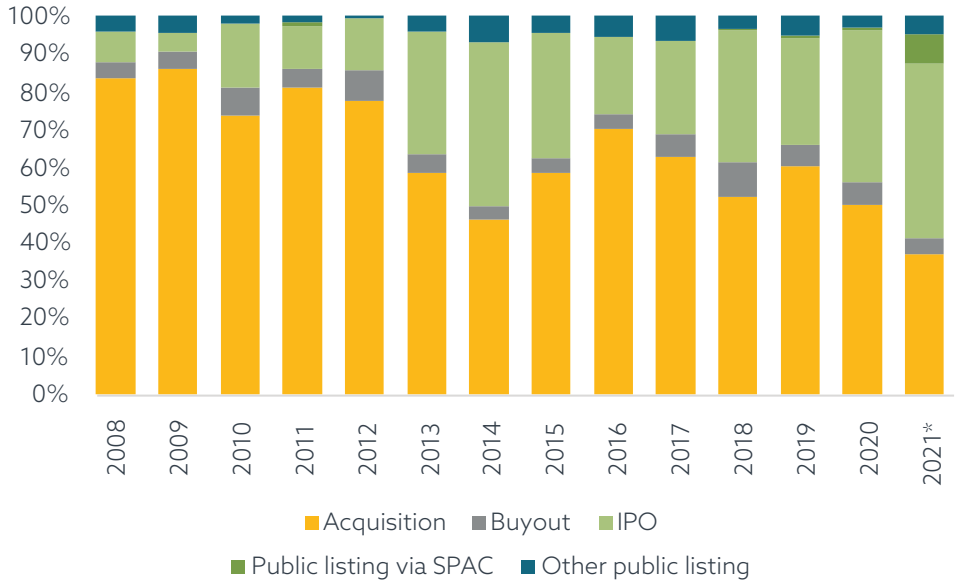
Life sciences VC exits (#) by type



Source: PitchBook | Geography: US
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Roundtable

Panel

Contributors

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CEO and Founder, Hummingbird Diagnostics GmbH

Gargi Talukder
Life Sciences Patent Lead Partner, Orrick

Jörg Ritter
Technologies Companies Group Partner – VC and M&A for Life Sciences, Orrick

Moderator

Neel Lilani
Global Head, Tech Clients, Orrick

Neel: Thank you to our panelists for joining us. Excitement and investment in the European tech ecosystem have been rapidly accelerating in recent years. How would you characterize the level of interest within life sciences? What technologies are gaining the most traction?

Bernd: Life science funds in Europe have broadened their remits, both in terms of stage of investment and field. There has been markedly more investment into medtech over the last three to five years, relative to the prior period, and generally, the scope of investments has broadened. We're also seeing a trend with much larger financing rounds from institutional venture capital—financings of 50 million euros or dollars are not uncommon, and sometimes we're even seeing more than 100 million in financing coming together in one round. Regarding private investments, I would say that the example of my fund is rather rare. Historically, most private investors have not chosen to invest in biotech companies because it takes such a long time to develop a new drug, etc. From the institutional VC funds, we've seen a lot of investments over the last three or four years going into immunotherapy and immuno-oncology therapy. And, of course, given the COVID experience, we're also seeing a lot of investment in mRNA.

Jochen: Indeed, the field of mRNA is very interesting, particularly in Germany, due to the success story that is BioNTech, with its mRNA COVID-19 vaccine. There's also CureVac, and, on the other end, you have the CRISPR field. In Berlin, T-Knife recently drove home one of the largest funding rounds in Germany. In the field of diagnostics and liquid biopsy, there are also interesting advancements happening, and these are driven more by capital coming from the United States than from Europe.

Scott: Coming from GreyBird Ventures, my perspective is a bit unique because we only invest in diagnostic technologies and we only invest in very early-stage businesses. We have three European companies in our portfolio, and when selecting each of them, we sought out technologies that were unique. In the United States, we're seeing many companies offering to use AI to process data that exists elsewhere, whether it's genomic data, medical records data, lab data or path data. We don't want to get involved in sort of an arms race where you win just because you spend more money faster than your competitors, but rather you win because you do something that other people are not doing. We think Hummingbird Diagnostics is the world leader in micro-RNA, and that's why we invested in them. We're also

seeing a lot of activity around blood, from the development of biomarkers for blood, either DNA, RNA, proteomics or something similar. The challenge, of course, is it's hard to be unique; it's hard to be doing something that somebody else is not doing.

Gargi: From an IP perspective in the United States, diagnostics have been a bit difficult. Getting patent coverage in European jurisdictions is different, so is this something you consider when deciding what to invest in or how to proceed?

Scott: We definitely look carefully at the IP of a company before investing. It is important when we invest to make sure we're comfortable with how the company has set up a way to protect what they're doing and is not prohibited from doing it. Now, it could be a combination of trade secrets and patents, but it gets back to not investing in an arms race. Even if someone thinks of a good idea and is one of the first to try it, if there are a lot of people who are capable of doing the same thing, we wouldn't be interested. It has gotten more challenging to patent some aspects of diagnostics, but the patents can happen in a couple of areas. One is the patents on the analytic processes—or the ways of collecting and preparing and analyzing blood. Or the patent can be for the way we are using that information, say, a signature for a disease. Again, we just look specifically at diagnostics, and I'll add that before COVID, everyone thought we were crazy to only look at diagnostics, but the world has now woken up to realize that diagnostics are important.

Jörg: That was a very clairvoyant decision you made there!

Scott: Ha ha! Actually, it was just all we knew, so we decided to stick with something we knew.

Jörg: I had a discussion the other day with someone from GreyBird Ventures, and I was thinking you're very lucky to have all that in place. But he told me, "No, we weren't lucky, just skilled." So, to some degree it was clairvoyant, but there was a certain concept behind it. You know, in the past three to four years, we've seen a lot of investments in software and biotech life science companies, as well as in vegan food companies. There's a huge difference between these sectors. Biotech takes the longest for the exit to occur, and you have the most difficult situation when it comes to IP. Vegan food production is the opposite, because there is no IP around—at least I'm not aware of any food company that has significant IP protection on the product—and the development and the exit are fast. Also, it's easy for a non-technician, without a scientific background, to assess and qualify the quality of the product. So, in comparison, if a biotech company is successful, you will see totally different valuations because the market is so much bigger and there's far less competition. I'm seeing [in life sciences] that the exits and the financing rounds are occurring far earlier than they did five or six years ago, and investors are buying companies at earlier stages than they did five to ten years ago. For example, with the big pharma companies, there is no pipeline—or a significantly smaller pipeline—and this is why they buy early-stage biotech. This faster pace makes it more interesting to investors, especially if they have several funds and the investment has to be transferred to a legacy fund. It can cause problems if the exit doesn't occur prior to the end of the term of the fund. Is this something you have also seen in the United States?

Scott: Certainly, the turnaround time from investment to the exit has become faster. It doesn't affect us because of the way GreyBird Ventures is structured, but I've heard from colleagues in different firms that they're thrilled that they can now tie up the research investment and exit in the length of a typical 10-year fund. There's another aspect to what you said, though, Jörg. I think a lot of entrepreneurs see a large financing round as a badge of accomplishment, but I think in the world of diagnostics, one has to be careful because the exit numbers are not going to ever reach the stratospheric heights that you see in the rest of biotech—particularly pharma. It becomes difficult if one raises a $100 million round to then get an exit valuation that would justify it. So, when we speak with entrepreneurs, we emphasize that what you want to be proud of is having gotten somewhere without needing a lot of money—to be capital-efficient and raise only the money you actually need.

Neel: In the United States, we've noticed a trend of SPACs beginning to aggressively pursue life sciences companies. Have you encountered this phenomenon within Europe?

Bernd: I actually tried to find a SPAC as a home for Zytoprotec, my Viennese company. About a year ago, there were so many SPACs. So, I thought this could be a good alternative for this company, compared to a large financing round. We were getting ready to raise 40 or 50 million euros, so we approached a

number of SPACs that had life sciences in their scope, but it was really difficult to even get a first meeting with them. I think they were overloaded with proposals. So, in my experience, I don't think this has really come to Europe. Or you could say the bridge between the United States and Europe is not that good. For my company, a true biotech company developing a drug—and we are now entering clinical phase three, so we are in a relatively late stage in terms of clinical development—it seems that SPACs so far do not play a role in Europe.

Jörg: So far, I've only seen one SPAC from a German company. I've heard of one that's coming up in the near future and one other that has nothing to do with life science—it was a high-tech flying device. Maybe it's a bit cynical to put it this way, but I think there is a similar process for a lot of life sciences companies. Taking CureVac and BioNTech as examples, they started off at similar levels of development but took totally different routes. CureVac partly failed, while BioNTech performed very well. SPACs are offering a similar experience: they don't have to have revenue, they don't have to have a market-proven product, perhaps they just need a proof of concept. A SPAC could be an ideal exit channel. The issue I see is, at some point, the SPACs will look for second-class technology because they don't want to be dissolved before their terms expire. So, we'll see some SPACs with technology that is not ready—products that are not yet ready—and they're only taken public because the SPAC needed a technology to invest in and couldn't find an alternative. I think that will cause serious harm to the SPAC concept.

Neel: Speaking of exits, how would you describe the M&A and capital markets climates for European life sciences companies?

Bernd: In general, I would say M&A and IPO are still the two main exit routes for life science venture-financed companies, for biotech companies as well as diagnostic companies. And by far the biggest chunk is trade sale—much more than IPO—because our public markets here in Europe are much less efficient compared to those of the United States. If you look at companies such as BioNTech, CureVac, or some other German companies, they went public on NASDAQ and not on the German stock exchange. QIAGEN is an exception. They went public in 1996 on NASDAQ—so that's a really long time ago—and they achieved a dual listing on NASDAQ and Deutsche Börse in 1997. So, they were the first German company with such a dual listing. In terms of exit route for Europe, it is predominantly a trade sale to a strategic buyer. For all private equity and venture capital-financed companies in Europe, there are more and more exits being done towards financial investors, i.e., private equity firms buying—but this is not the case in life sciences. In life sciences, it's really just the classic route—sale to a strategic buyer whether it's pharma or diagnostic. And I think the reason for the much less significant public markets is that the United States has many more investors who are educated public investors in the life sciences biotech field and also because the capital markets in the United States are more efficient than in Europe.

Jochen: I agree with Bernd, and I think especially when you look at the example of the Neuer Markt in Germany. In the late 1990s and early 2000s, this was an IPO field for young companies, whether they were tech or biotech. But that market crashed, and it did not come back. So here in Europe, we have nothing equivalent to the NASDAQ. I think that is one of the reasons why BioNTech and the others are listed in New York on the NASDAQ and not in Europe.

Bernd: Also, if you look at the market cap of BioNTech, it's bigger than 90% of the companies listed on Deutsche Börse Xetra. So, if BioNTech was listed in Germany, just two or three companies listed in Germany would have a bigger market cap than BioNTech. But they're not even listed here in Germany.

Neel: What is driving European life science companies to pursue a dual-list strategy when planning an IPO?

Jörg: First, it's the accessibility of the market, and secondly, it's that the valuations are dramatically higher. For example, look at Lufthansa. It has a market cap of 3 billion euros, and MediaMarkt, which I think is the world's largest consumer electronics chain with 65,000 employees, has a market cap of 1.6 billion euros, which, relatively speaking, is nothing. Really, there are only a few German companies—probably Siemens, Allianz and SAP—who have a significantly higher market cap.

Gargi: Regarding the regulatory context around those types of exits, particularly acquisitions and mergers, what I have seen from the U.S. perspective is that sometimes, depending on the size of the target company, these acquisitions can be blocked by European agencies

because of concerns of competition and antitrust. Even in the United States, especially with the work I do in the genomic space, we sometimes see this triggered. Have you encountered this as well?

Jochen: I think that as a company, you always consider all perspectives. Each and every market has specific regulations. For example, the United States has its own regulatory challenges, and then here we have the European Medicines Agency (EMA). So, yes, when you want to take a product to market, you must plan very carefully.

Bernd: But you were talking about the regulatory environment for exits, right? Not for biotech?

Gargi: I think it should probably be both. It could be the medical regulatory aspects of things. But, yes, what I was talking about were exits in terms of an acquisition target, but then it is denied the merger, or the acquisition is denied because of these competition issues.

Jochen: When we look at the examples of Illumina and GRAIL, they have issues in the United States as well as in Europe.

Gargi: Yes, and with Illumina, as well as with biosciences, it seemed that everything was going well until European authorities got involved, which seemed to catapult the U.S. regulators into doing the same thing. It seems like there is an interplay between the two.

Jochen: But I think at our level, that is not the limiting factor.

Gargi: It's not a consideration that you think about at that late investment stage?

Bernd: No, I have not experienced that. In my experience of about a hundred transactions, I have not seen an issue with anti-trust.

Jochen: What I've seen coming up is not specifically with antitrust, but the issues of technology and politics, where politics have a say.

Jörg: The European competition authorities have become very involved. With antitrust, it's been fairly simple, because the system categorizes whether there's some monopoly or market domination based on revenue, and these companies, even upon exiting, don't have significant sales. Even with the latest sale of a life science company, there was no issue. However, the intervention by European competition authorities is significant. For example, the potential acquisition of CureVac by the United States government: I think this was more or less a PR gig by some of the investors and their representatives at the time. But it was believed that President Trump wanted to buy CureVac and have it produce or use the products, i.e., the vaccines for the United States, exclusively. This caused a lot of uproar in Germany—that a German invention, predominantly developed with German taxpayers' money, would not be sold in Germany. So, this is why everything surrounding COVID and COVID products now needs approval for Germany. And this is starting at a 10% investment—so extremely low and causing a lot of troubles—even in the field of venture capital investments. Also, the process is lengthy and complicated, so even if you have the goodwill of the entire government behind it, it will still take four to five months. This is, for the average financing of a company—especially if the company is in need of refueling—far too long. And now that this can of worms is open, I highly doubt that it will go away. Even if COVID is gone, this will stay.

Neel: Scott, as a U.S.-based investor, has the connection between politics and regulation impacted how you view investment opportunities in Europe?

Scott: Generally, it doesn't affect us when we're looking at investments. Maybe we should be thinking about it, but we're focused on looking for companies we believe in. This regulatory consideration did apply to GNA when we sold that. I would characterize the way we saw it as hoops that had to be jumped through but with fair confidence that we could jump through them. Where we're seeing it in the United States is not with respect to Europe so much; it's with respect to China. We had a company that would have been a natural fit to be licensed or sold into China, and it was so clear from the start that it would not be allowed. And so, the restrictions on a U.S.-to-China transfer of technology are very severe right now, nowhere near as difficult as restrictions with Europe.

Neel: How would you compare the concentration of capital from Europe versus international sources? Are you seeing patterns among inflows of capital from foreign sources?

Bernd: We've definitely seen more international syndicates during the last five to seven years. Next to European investors, we mainly see U.S. investors. There are a lot of talks with Asian investors as well, but the closing rate with those investors is much lower

on the level of operating life science companies. Specifically, regarding the funds from the VC institutions, in the last few years, the large European VC institutions are raising bigger funds than they were, say, 10 years ago. When we look at the broadened internationalization of investors behind the growth, we're seeing a larger chunk of U.S. investors in funds and more Asian investors in funds as well—really on the fund level rather than on the portfolio level. So, more LPs than direct investors.

Scott: We have a number of Asian LPs at GreyBird Ventures as well.

Bernd: If you look at VC managers like Sofinnova or TVM, my former company, or LSP, Forbion and Gimv in Europe, or at the typical biotech investors, it's the same all around: they all closed at the typical fund size for established VC players 10 years ago, at around 200 to 300 million—and now they have funds raised most recently with more like 400 to 500 million in volume. This does not result in more investments into portfolio companies, because the portfolio number is basically the same, it just means there's more investment per company.

Scott: And I think that's in part because most VC firms have limited bandwidth in terms of the number of portfolio companies they can or want to manage at any point in time.

Bernd: Absolutely, and it's true from two angles. One, you only have a certain amount of bandwidth, and two, a typical portfolio will have 20 investments, but if you increased that to 30 or 40 companies, then the big hits would not have the same impact. So, it doesn't make sense to increase the number of investments in the portfolio.

Gargi: Do you find that when it's an international fund or investment, that there's a focus on a particular technology subsector?

Bernd: Actually, interest in diagnostics tends to be very rare. So, GreyBird Ventures is really unique in this industry. The majority of the life sciences funds in Europe focus on drug development and medtech. More than 20 years ago, when I was active at TVM, we had funds that had a combined focus on life sciences and IT investments. We were the first to split those in Europe, separating funds for life sciences and IT... and then the whole industry followed. Now there are only a few that keep them combined—Earlybird is an example. So, there's the split between focusing on life sciences or IT, and then, even within life sciences, you also have a split between specializing in medtech or on drug development. Lately, we're seeing more merging into true life sciences funds instead of segregating into Series A investment funds, like GreyBird Ventures is doing, or bigger funds that typically focus on the later-growth phases. The classic VC managers even have split their funds into early-stage funds and a more growth-stage/later-stage investment focus.

Gargi: Do you find the international investment funds are focused on a specific type of industry?

Bernd: I think they're all fairly similar. For example, looking at the established market players that are focused on life sciences, like Sofinnova or the U.K. funds, these funds were always bigger and could invest across all the different stages. Looking now at what Sofinnova, Life Science Partners, Wellington, TVM, and these established life science investors are doing, it seems to me that they are all following this same path of developing funds that specialize in the different stages.

Neel: What long-term trends are you seeing emerge within the European life sciences ecosystem?

Bernd: Something I started to notice about 10 years ago is that there is more private money being invested. For venture capital in Europe, with more and more success stories, we're seeing certain individuals who were managers of companies or funds and developed private wealth and are now investing that back into life sciences companies, which is interesting because drug development is a tough business since it takes such a long time.

Gargi: One other thing I'll add—which is more of a technology-based observation given that this group is more focused on diagnostics—is that 5 to 10 years ago companion diagnostics seemed to be the main direction in which diagnostics companies were moving, but it has not gone that direction. Instead, we're seeing much more prognosis and monitoring, and I'm curious if others here thought similarly?

Jochen: Yes, the challenge with companion diagnostics is the fair takeaway between diagnostics and therapy.

Scott: You know, this gets back to Jörg's comment about us being clairvoyant. In fairness, if you look at

GreyBird Ventures' initial investment thesis—when we were starting to raise money—we had two main points as to why we're focusing on diagnostics. One is that we're seeing more and more expensive, very targeted therapeutics coming in, and that was what was driving the VC market back then. But no health system can sustain that, or any of these technologies, without better diagnostics and diagnostics that allow us to know who should get them, how people will do once they get them, and to use those remarkable therapeutics more efficiently. That was point number one, which has proven to be true. And point number two was that the greatest threat facing us as healthcare providers or as public health agents is a pandemic that we can't control because we can't identify it. And that has also proven to be true, so we were a bit clairvoyant, but I think both of these factors do relate to what you said, Gargi, about why diagnostics have become important. And the world has come around to realizing both of those points are critical, and I think it will become more so as we get more of these remarkable, you know, million-dollar therapies.

Jörg: I think that the COVID crisis has provided a tremendous boost to the life sciences industry, and without any COVID incident, neither CureVac nor BioNTech nor any others, such as Moderna, would have a product on the market yet. So, we probably saw this technology sped up by five or six years, and that will have a broader impact. We'll see other products based on the same technology coming to market far earlier than they would have without the COVID crisis. This same boost that it gave to diagnostics, really gave a boost to the whole industry and the importance of the industry. I mean, before, everybody was talking about the latest smartphone and the latest app where the picture only appears for two seconds, instead of three seconds, and how the competitor can do this. Now we're talking about the importance of life sciences, which have become more vivid and more visible to the public and within the political sphere. This will speed up a lot of processes and won't go away... we'll see the development of other drugs for other diseases much faster than anticipated.

**This transcript has been edited and condensed for clarity. The thoughts and opinions expressed belong to the panelists and not their respective organizations.*

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