Drugs&Dealers magazine

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Dear Reader,

Welcome to the October issue of Drugs & Dealers magazine.

In this issue of Drugs & Dealers we interview exceutives from the world of venture and corporate venture capital, biotechs who've recently secured significant investment to fund their growth plans, plus charitable funds and organisations that are approaching bioscience, healthcare and social investments in their own unique and novel way.

We explore the key success factors behind recent funding rounds and capital raising, we examine what is making VCs and CVCs tick in today's current funding climate, how bioscience players are able to how engage and ultimately work with active VCs and CVCs plus much much more.

We hope you enjoy reading.

Best Regards

Neil Darkes, Co-CEO

Terry O'Dwyer, Co-CEO

P.S. On Nov 27 in London we are holding our next 'Biotechs and the City' evening panel and drinks reception that has a focus on Licensing and Partnerships. Please do sign up at www.biotechandmoney.com/events. Please contact our Partners for concessions.

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Epidarex Capital: Will this fund be the poster child for early stage investment?

Sinclair Dunlop, Managing Partner, Epidarex Capital

Epidarex is a specialist life science venture capital group that recently raised a new fund of £47.5 million dedicated to UK start ups and university spin outs. Backers include US drug giant Eli Lilly, the Universities of Edinburgh, Glasgow and Aberdeen, King's College London, the European Investment Fund, Scottish Enterprise and Strathclyde Pension fund.
Sinclair Dunlop is the fund's managing partner, and he talks to us of his ambition for the fund to become a catalyst for the sector, ultimately helping to bridge the early-stage funding gap while demonstrating a competitive rate of return can be made for investors in this sector.

B&M: Sinclair, I wondered if you can tell me a little bit more about the Epidarex fund itself, what is its history, who are its backers and what are its unique features?

Sinclair Dunlop: It is a product of a model that we refined and built mainly on the east coast of the US, with an initial a focus on the mid-Atlantic region. The key driver of the model is to fill the equity funding gap between the seed and mid-stages of growing life science companies. .

We also believe in filling the gap in what we call, geographically, under-ventured regions. We've had some success in the last 15 years in the mid-Atlantic of the US, looking for the richest scientific opportunities that are struggling to raise scalable venture capital. This challenge of accessing funding, particularly in the life sciences, is global.. And frankly outside of Massachusetts and California, it's almost as much of a challenge in the US as it is here.

About 3 years ago it became clear to us that probably the richest opportunity for life sciences and particularly under-ventured life sciences was in the UK, and especially in Scotland.

And that was when we started a conversation with some of the groups who became both our partners and our early investors, including the3 top universities in Scotland: Edinburgh, Glasgow and Aberdeen. Scottish Enterprise, Strathclyde Pension Fund and the European Investment Fund also provided critical early support of our proposition.

Across the UK there are particularly rich opportunities to be found within the delta between a world class science base needing commercial translation and scalable risk capital to fund that translation. This gap in the UK probably offers more unrealised potential than in any other developed economy at the present time.

And so we saw a great opportunity. Many parties, including those coming from a public policy perspective, had already recognised this challenge, some on a glass half empty, others on a half full basis. We made the case, on a half full basis, to many of our early backers that the UK was in need of pots of scalable risk capital for the life sciences, and the plan

then became to raise an early-stage fund dedicated to the UK. And that was what we ultimately did. To the particular credit of those 3 initial universities, EIF, Strathclyde Pension Fund and Scottish Enterprise we pulled together the critical mass needed for our first close, and then we kept up momentum by attracting additional investors, from three leading UK family office investors and King's College London. And then we were very fortunate to bring in Eli Lilly & Company, North America's oldest blue chip pharmaceutical company that will bring an immense amount of resource and expertise to support some of our portfolio companies.

We've brought together a rich and diverse array of investors from the public and private sectors, including a leading financial institutional investors and a global 'blue chip' corporate.. And I think that's one of our greatest strengths. Because all of us are aligned in support for the sector and a shared determination to fully realise the potential of the UK life sciences sector. And that was the genesis of what has come about in the last 2 to 3 years.

B&M: So if we look at the role of Epidarex in the sector as a whole, would you see it then as one of bridging the development gap - not just talking about very early stage but geographically as well?

Sinclair Dunlop: Catalyst is a word that I like. It is of course unrealistic to think that we alone, with under 50 million pounds under management, can fill the gap but we hope to catalyse syndicates of co-investors alongside us to go some way to bridging the funding gap. So, over time, there should be a multiplier effect. And we're already seeing some encouraging signs by being the local champion within the geography of the UK.

> "Our opportunity is to create a really exciting portfolio. We've got capital, a number of projects that we are looking at and projects we haven't seen yet. We're very much at the beginning of the life of the fund."

And regarding the geographic gap internationally, we like to think we're also beginning to add some value. Internationally we've been lucky to have interest from both Japanese and Korean investors who are increasingly keen to see what is going on across the sector in the UK.

We're therefore a potential conduit or the possible vehicle for those sorts of strategic dialogues. So I think there's a lot to be said for the UK as a good place to be building early stage biotech businesses. And overseas investors, whether they be global corporates or larger US venture funds are are certainly looking around for investment or partnership opportunities in the UK. So there is both international bridging as well as internal, intra-UK bridging if you like. We are in the fortunate position to be able to bringing together principle investigators from different universities across the UK to lead on the clinical trials of some of our current and future portfolio companies. We've also recruited some top executive talent into our first portfolio company here in Edinburgh.

I think if you can provide a critical mass of early-stage funding, at or above a certain threshold, that number probably being around 2 million sterling in seed or immediately post-seed funding, companies that were previously trying to scrape together a few hundred thousand, a lot begins to happen. There's a momentum threshold that is reached that also tends to attract management talent and other investors, critical for the providing follow-on funding, on the next step of the 'funding escalator'.

B&M: If you could summarise the funds key goals, what would they be? And have you put any milestones in place to achieve those goals?

Sinclair Dunlop: Obviously our number one priority

which is also our fiduciary responsibility is to maximise the rate of return to our investors. And I don't say that flippantly because it's also strategically critical that we do that. Because, if we can't prove to institutional investors, the sources of hundreds of millions of pounds of capital needed into the sector, that you can make money and generate a competitive rate of return in this sector, in this geography, then we may as well all go home.

B&M: If you look at that challenge then of delivering a competitive rate of return, what do you think is the biggest obstacle to doing that at the moment?

Sinclair Dunlop: Timelines. Unlike any other sector it takes much longer to develop a product, to commercialise a product, to launch a product… it's incomparable to almost any other sector. You have to be patient. Life Science investing epitomises 'patient capital' if you like. No one should get involved in this sector thinking there's the probability of a quick win.

B&M: So in terms of mitigating that, is it just a matter of educating investors of the timelines involved? Or how does one address that particular challenge?

Sinclair Dunlop: I think yes, absolutely, for institutional investors that are not familiar or any investors, including angel investors or any type of individual investor, who is not familiar with the sector, it's important the sector does a good job of communicating just how lengthy development cycles can be, and just how impactful a single set back in a single trial can be in terms of investment return. The same value inflection points also have potentially significant upside but it should 'eyes wide open' on all risk factors, from the start. Investors should know that companies that fail to meet those critical milestones, developmentally, will be closed down.

But you know, at the same time, a winner is a winner in this sector. Whilst it may be a long time in the making, if you hit the bull's eye you have the absolutely beautiful outcome of generating competitive investment returns whilst most likely also having a big social impact. That launch of a new drug or a medical device that offers a much more effective treatment, or even a cure potentially, for a large and unmet medical need is the goal that drives us all in this sector. And in that context, Epidarex spends a lot of time looking at 4 or 5 big disease areas, as well as some rarer and neglected diseases, where there is still a desperate need for more innovation and commercial success.

B&M: How do you go about identifying the investment targets for the fund?

Sinclair Dunlop: We spend a lot of time working closely with our university partners, as well as our contacts in industry, to source novel research and development that has significant commercial potential. We also spend a lot of time in that context with the key people, including founding scientists, as well as the management team that we'd back to take the innovation through the clinical and commercial development process. These teams are critical, because it is inevitably the case that whatever business plan Epidarex funds initially, it will not be the plan that gets a product to market or to exit. So it is around the fundamental quality, complementary skills sets and overall flexibility of these teams where we spend the most amount of time, in terms of both our initial diligence and then our on-going post-investment support, which is critical.

Specifically, we like to get in very early with these Founders as well as in the recruitment of others so we can build teams, even prior to making our initial investment in some cases. We're also big believers in early and often lengthy dialogues with these individuals before we will write a cheque, before we become an investor. I think that's another unusual aspect of our sector, the entire review process followed by due diligence is much lengthier than in some other sectors. It would not be unusual for us to spend between6 and 12 months completing an entire diligence process before we make an investment.

B&M: I think what you mention about people is a very common thread that runs through all of the interviews we do at Biotech and Money. I guess what would help is if you're more specific. What exactly is it you look for in the people you're bringing together?

Sinclair Dunlop: In terms of underlying traits, you need a degree of tenacity, self-confidence, intellectual rigour, commercial savviness, ideally with entrepreneurial experience – successful and unsuccessful. . There's a lot to be said for a serial entrepreneur of whom we don't yet have enough in our sector in the UK. I'm potentially comfortable backing a CEO who might not have necessarily succeeded in his or her prior venture. Those individuals often have invaluable experience, as well as the courage to try

again.

B&M: Sounds like you've basically got to be superman!

Sinclair Dunlop: Pretty much! And then for academics and founding scientists, another key trait we look for is flexibility, particularly with regard to management roles going forward, and in some cases, an early acknowledgement that they're not going to be the CEO who ultimately takes this company all the way. . For example, it's prudent for all on a start-up's management team to acknowledge that at the right point in the company's growth it's going to be very helpful to bring in additional skills, in the form of a serial entrepreneur and/or seasoned industry veteran, who has previously developed drugs or devices all the way to commercial launch.

And the chemistry, pardon the pun, within teams, of complementary skills sets, is critical. And human attributes around the strength of personality are veryrelevant in these types of situations. Founders who acknowledge what they don't know, whilst excelling at what they do know, can be a gift to an investor in successfully pulling together entrepreneurial teams built for enduring success.

The teams that Epidarex funds are going to work together, practically 7 days perweek for several years. And we're also going to supportthem 7 days a week. Whilst we're going to be on their boards we also aim to provide extensive additional support, almost on an as needed basis. . Some seem to think life as a VC is rather glamorous, where we just fly into board meetings and sit around and lay down the law. Our

experience at Epidarex is that nothing could be further from the truth. We're 'in the weeds', sleeves rolled up, getting stuck in if you like, often on a day to day basis. That's part of the job – as it should be. The 'nuts and bolts' of building very robust businesses is not that glamorous, it's often just hard work – and we're committed to it.

B&M: And how would you assess the crop of potential targets at the moment? Are you satisfied?

Sinclair Dunlop: I think it's very rich in the UK in terms of research and development across our sector. Aside from the obvious world class quality of our universities and research institutions, we're particularly fortunate in the UK to have relatively sizeable sources of non-dilutive support which can be very helpful to our target investments Epidarex's first investment, for example, in Edinburgh Molecular Imaging, a spin-out from the University of Edinburgh is developing highly novel fluorescent imaging reagents that detect harmful processes deep inside the human body, at the bedside, in real time and at molecular resolution. This very innovative translational research (spanning chemistry, biology, and medicine) from the University received prior funding from both Wellcome Trust and the Medical Research Council. We are also fortunate that the current UK government understands the importance of supporting early-stage innovation in our

sector. And in Scotland we are very fortunate to have a major economic development agency in Scottish Enterprise, along with its financing arm, The Scottish Investment Bank (SIB), that are very committed to supporting investor-led innovation in the sector. . SIB co-invested alongside Epidarex in our founding investment in Edinburgh Molecular Imaging.

You wouldn't necessarily see this level of support in most other EU markets and neither would you see it in many parts of the US. This support is helping enrich the flow of opportunities for Epidarex and other funds. That said, many of these opportunities still need some shaping, and still need some commercially-minded guidance as to their market positioning and overall development strategy. It's our responsibility as investors to ensure our investees are not, initially, biting off more than they can chew and that, fundamentally, we're all agreed on a credible and therefore fundable business plan. Any investment Epidarex makes is heavily milestone-driven.

So in terms of opportunities, the quality of research and innovation in the lab and on the bench top is world class. The challenge is putting detailed, comprehensive and well-funded plans in place to deliver on the successful commercial translation of that innovation. Our next two investments, to be announced very shortly, will reflect this.

B&M: The fund itself is quite young, only 1 year old. When do you think you will have a feel for if it will be successful?

Sinclair Dunlop: We finished fund raising in April and we will be at least a 10 year partnership. I think we'll have a much better feel in how our portfolio in maybe 3 to 4 years now.

B&M: And what would you say is the biggest opportunity that you have? What is the ultimate goal?

Sinclair Dunlop: I think big picture we want to become the poster child for the idea that you can generate competitive rates of return in this sector. We have to be able to deliver on that, because there's so much more capital needed than Epidarex alone can provide. And again that's the point I was making earlier, we have to convince an institutional investor audience that this sector can't be ignored. With institutional capital, at scale, there is immense growth potential, over time, for the UK's Life Science sector. Even better, that growth comes with the opportunity to have a major social impact, in terms of significant improvements in patient outcomes.

What would be fantastic would be that if Epidarex could become the example that is cited by others in raising their funds. I think with the scale of the unmet funding need in the UK is such that there should be at least half a dozen funds like us kicking around the UK. There aren't that many right now and that's an opportunity.
If others could hopefully follow our future success that would be ideal.

B&M: It is an incredibly worthy aspirational goal to have. If you look at the road to get there, what do you see as the biggest challenge?

Sinclair Dunlop: Another aspect of the access to institutional capital challenge, is for the UK to firmly establish that it has an active public market (i.e. flotation) option for some of our higher growth life science SME's. We've had a couple of successes in the last year that are encouraging, but we need to see more of that. If the shine comes off what's happening in the US markets, particularly with life science SME's listing on NASDAQ, that, obviously won't be helpful. If the City (of London) could further re-establish its coverage of and enthusiasm for equity investing in the sector that would be very helpful.

Ultimately, if we don't deliver competitive returns, and again if we can't prove that you can make money in this sector, that's going to be an obstacle to growth.

Another challenge is the need to ensure we're keeping enough industry R&D capacity, particularly with regard to our top 'med chem' talent, in the UK. There are currently too few opportunities for our top medical chemists in the UK. Some of this talent can be funded by the likes of Epidarex backing early industry spin-outs but more needs to be done.

Finally, and at the risk of stating the obvious, if the regulatory environment was to become more aggressive, that wouldn't be helpful.

B&M: Are any of these trends you mentioned ones with which you are particularly concerned?

Sinclair Dunlop: I think that there's always a regulatory concern. There's always a potentially high degree of regulatory risk present in our sector. And in some cases the regulatory burden seems unnecessarily high. There are also obvious issues with regard to public sector health systems, in terms of pricing pressures, approval of new drugs and NHS procurement. However, there seems to have been some recent improvement, particularly re the latter.

Another key task at a macroeconomic level is to make sure that the UK remains as tax competitive as possible. I would say the present government are actually aware of that. Capital is global, and flows away from any geography that is relatively punitive.

B&M: Taking into consideration all those risks and uncertainties, and also the current realities we're in, would you say you're currently optimistic, pessimistic or indifferent for the UK life science industry?

Sinclair Dunlop: I shouldn't be in VC if I'm not an optimist! I'm reasonably optimistic. I think the fact that big pharma is partnering early and bringing a lot of resources to the table is a very good development. Epidarex is very lucky to have our partnership with Eli Lilly in that context. I think the fact that public markets have opened up and thatthere are a few other VC'ss now managing to get their new Funds raised is very good news. We also have excitement now entering the public consciousness in areas such as cancer immunotherapy which is, rightly, another cause for optimism.

B&M: One last question I'd like to ask. For the companies or targets that you're looking to work with, do you have any particular advice for these young companies or university spin outs that are looking to access venture capital?

Sinclair Dunlop: Absolutely: come to us early, come to us before you're looking for money. Be honest with us, tell us the parts of your story you've worked out, and the parts of the story you haven't yet worked out. A "warts and all" approach generates confidence on our side of the table. I think the best we can do is give advice to entrepreneurs before they have necessarily set in stone the path that they're asking us to fund. We often find ourselves in the heart breaking situation where a company comes in and very proudly tells us what they've just spent a few hundred thousand pounds or a couple of million on doing and, in actual fact, it's not what we as investors or the market needs to see. In many cases we do find ourselves, even with a great piece of science at the core of the proposition, having to go back to the drawing board.

So I would always encourage entrepreneurs to come to us earlier rather than later. Come to us to discuss your proposition and potentially for advice before you need to ask for money All of us at Epidarex have an immense amount of respect for the entrepreneurs we work with, and we're keen to help wherever possible. So entrepreneurs should of course try to sell us on their vision (and they need one!) but they should also tell us what they don't yet know. And that will actually engender trust and will most probably be the basis for a more functional relationship if Epidarex does ultimately invest. ■

A new way to bridge the investment gap: The Cancer Research Technology Pioneer Fund

Robert James, Managing Partner, Sixth Element Capital

The CRT Pioneer Fund is a £50m fund established with Cancer Research Technology (CRT) and the European Investment Fund (EIF) to bridge the investment gap between cancer drug discovery and early development. It takes potential cancer drugs, primarily discovered by Cancer Research UK, from discovery through to entry to Phase II clinical trials before partnering with pharmaceutical and biotechnology companies. Robert James is Managing Partner of Sixth Element Capital, a fund management business, which has been established to identify investment gaps initially in healthcare markets and to implement novel solutions to bring finance and innovation together.

B&M: Robert, tell me a little bit about the CRT Pioneer Fund. What is its history, what are its key USPs and what is your key focus at the moment?

Robert James: It's a £50m fund, 2 investors, 3 if you count management, but 2 principle ones, Cancer Research Technology and the European Investment Fund. Its focus is on asset financing of new cancer therapeutics. At least two-thirds of the fund is going to be invested in projects derived from Cancer Research UK's oncology drug discovery portfolio, and one-third from outside. The goal is to identify projects with a high level of scientific novelty or clear patient benefit and preferably both and move them into clinical development through CRUK's newly named Centre for Drug Development. We will do that before we then licence onto big pharma.

B&M: What are the key differentiators? What makes it unique?

Robert James: Having done early stage venture capital for 10 or 15 years, I felt could see a lot of the imperfections of the traditional VC financing model. Therefore, we've tried to structure the CRT Pioneer Fund differently so that there's a better shot for investors in the fund to make money. Our default is to be doing asset financing rather than equity investments but we have the flexibility to do both. I've seen the whole phenomenon where as an early stage investor you invest a couple of million pounds in a technology from university, and by the time you get to the 2nd, 3rd, 4th round, unless there is a big increase in valuation you're equity is diluted and it's very difficult to make money. One of the things we've tried to do here is to identify projects where additional capital put into the CRUK Drug Discovery Units from where they've originated and subsequently capital into funding their continued development can move the project forward prior to partnering without having to invest in infra structure to establish a new company. Working with the world class scientists funded by CRUK to help move their exciting discoveries forward is very exciting and makes the CPF unique for investors.

B&M: Why do you think that approach is so important? Why is setting up spin-out companies not such a good idea or why is it less effective?

Robert James: As I said this is not a panacea, but where there are projects where you've got fairly well defined compounds and you've got a good idea of what the compound is going to look like and a good idea of what the clinical trial looks like, this approach can work very well. We will look to fund the project and use that cash very efficiently to get to the point where the project is going to be ready to licence. The alternative model is to take that project and put it into a venture company but then you've immediately got a CEO, CFO etc. and suddenly your capital isn't being invested as efficiently. This model is best suited to platform technologies where there is significant investment needed to establish the technology and/or where a company has a genuine portfolio of assets to develop. Our view is that we'll do our diligence on projects and select what we think are the best single assets and build portfolio diversity at the level of the fund rather than the portfolio company. By doing this we think we can manage risk in a capital efficient manner.

B&M: The fund was closed in March 2012, so just over 2 years ago. Still relatively young, but In that time, are you able to point to any successes or failures or any lessons you've learned so far?

Robert James: We've licenced 3 projects so far with two more deals to be announced in the very near future One of them is a CHK1 inhibitor that was developed in collaboration with the Institute of Cancer Research and we're investing in a small syndicate to take that to what will be a very significant phase 1 trial. It exemplifies what we're trying to do with CRUK and CRT with the CRT Pioneer Fund. The CHK1 compound was discovered in collaboration between

> "The dearth of early stage investors in the UK and Europe makes it very difficult to raise the capital needed to move things from A to B. The financial model that we are putting forward does enable capital to be deployed to move a project forward."

The Institute of Cancer Research and Sareum and using CRUKs Centre for Drug Development the project will be taken into Phase I clinical trials. At a very basic level, we're trying to join the dots at CRUK by investing mainly in projects discovered from their scientific research portfolio and financing them so that they can be rapidly moved into the clinic whilst retaining the management, scientific and clinical expertise associated with the projects. We are not trying to re-invent the wheel!

B&M: What do you see as the principle obstacles or challenges that face the fund at the moment?

Robert James: Clearly the fund will work commercially with one success. The challenge really is in getting the diversity and investing the money wisely to create a portfolio with a big enough spread to give it a real chance of success given the high level of attrition in pharmaceutical drug discovery and development.

B&M: How would you assess the current quality of potential targets at the moment? And how do you go about selecting these targets? What do you use to identify them?

Robert James: The quality of targets is good. Like most people, we're looking at all the standard issues, like mechanism of action, intellectual property, potential utility but novelty of science and a clear clinical strategy for a project has been key for us in selecting projects.

B&M: What does a 'clear clinical strategy' mean to you?

Robert James: For example, we're looking at projects at the moment where there is a very well defined genetic population where one might expect the compound to be active, so even though the project is in its early discovery phase we've got a very clear view of how you would test the compound in early clinical trials. That's really important for us because we can invest about £5m to £7m in a projects and at the end of that investment we ideally want a licensing package supported by mechanistic and pharmacodynamic data

and really clear plan for where a pharma company would go with that. Given that investment capacity is relatively small, we can't afford to be doing 2 or 3 Phase II trials in an 'untargeted' fashion to try to identify a potential patient population. We have to try and think where activity is, very early in our diligence so we can decide if a credible development plan is within our investment capacity.

B&M: What do you think are the key success factors?

Robert James: I think the team is key. Although we are investing most of the fund into projects rather than companies, the early stage investments in CRUK projects are made into CRUK Drug discovery teams. Those teams are very highly skilled guys now with lots of experience in biotech, pharma and academia and when we're investing our money in those teams we know they've got the experience and expertise to do what needs to be done.

B&M: If you look at the fund, you've described the overarching goal, but do you have any specific goals or milestones you are working towards in the next 12 months or so?

Robert James: No not really. We've invested in 3 projects so far, we've probably got 7 or 8 to go so for us it's just about picking the best projects we possibly can.

B&M: What do you think are the kinds of things that could get in your way or prevent you from succeeding?

Robert James: One of the questions we ask ourselves

is: why can a small fund invest in a project and win against other much better resourced organisations It's always a slightly double edged sword because if you've got a well-established target which people are interested in, you have to ask the question what is our edge in that, or you're going up against a target which is not so well established in which case the question is why is this target relevant to cancer therapy. Either way being competitive is the key issue for us and we will always strive to invest in projects where we have a clear, rational belief that our project is in the top one or two of its kind globally. If we ended up with a portfolio of 'me-toos' although that might reduce technical risk we believe that this would significantly reduce our ability to partner projects on good terms and therefore ultimately reduce the risk of the fund being successful.

B&M: How are you being competitive and what's your strategy? Is it just in the planning and doing the competitive landscape properly?

Robert James: Partly, because we work very closely with the CRUK drug discovery groups those are the guys who are ultimately picking the targets that they want to work on and they will all have rationales for why that target is particularly interesting and why it is that there's some kind of an edge. Quite a lot of that is around biological insight or a biological expert who has got a unique a model where you can thoroughly evaluate compounds that might inhibit or activate at the target. It is that biological insight that is quite difficult to reproduce. In addition, because the fund's remit is to be investing in novel science we are seeking out projects where by definition there is not much competition because the project is the first in the space. That may be enough to give us a 1, 2, 3 year edge over the competition and that's all we need. The model is about getting projects to the end of phase 1 and then partner with pharma. The muscle to take the thing through phase 2 and phase 3 is something that big pharma will do but we just need to be nimble and get these opportunities into their hands.

B&M: The fund is obviously set up to help bridge

the development gap. How would you describe this development gap, what does it actually mean in terms of cancer drug development and where does the fund help?

Robert James: It's very difficult for companies to raise money to support clinical development on 1 or 2 projects. The dearth of early stage investors in the UK and Europe makes it very difficult to raise the capital needed to move things from A to B. The financial model that we are putting forward does enable capital to be deployed to move a project forward.

B&M: Asset based financing is one approach, but are there new models or approaches you are seeing on the horizon for cancer or indeed any drug development funding?

Robert James: The other way to avoid the challenges of being an early stage investor is if you've got a company that needs £20m or £30m before it hits an inflection point, you need to have that capital around the table on day one. What used to happen 10 or 15 years ago was that companies started with small syndicate investing the first £3m or £4m and then go and raise another £10m at a higher valuation and raise still further capital downstream. That's much harder to do these days.

B&M: Why do you think it's harder?

Robert James: It's valuation. It's quite hard to move a project forward in a really material way to a point where your next investors are going to give you the benefit of a big injection of capital at a valuation that makes sense for the company and its early investors. If you've got the capital round the table, not all deployed on day one but if you know around the table the people that can between them invest £20m or £30m you've got a much better shot at actually making progress which needs to be made scientifically.

B&M: What are the challenges in building that syndicate?

Robert James: Having VCs that are likeminded, have worked together in the past and have similar alignments in terms of fund size and timings.

B&M: What do you see as the biggest opportunity for your fund at the moment and how are you planning on realising that opportunity?

Robert James: Our opportunity is to create a really exciting portfolio. We've got capital, a number of projects that we are looking at and good deal flow. We're very much at the beginning of the life of the fund, and that's the opportunity. The next 2 or 3 years is about deploying that capital into a very exciting portfolio project.

B&M: What about the converse of that - what's keeping you awake at night, what are the things that are worrying you the most?

Robert James: We are picking projects that have slightly higher risk, targets are going to be less well validated than others so it's going to be a challenge in partnering those. The decisions we make now essentially bake in the in challenges we will face in the portfolio for the next 10 years. ■

How is Corporate Venture Capital in life sciences evolving?

Deborah Harland, Partner, SR-One

SR One is the corporate venture capital arm of GlaxoSmithKline. The firm invests globally in emerging life science companies that are pursuing innovative science which will significantly impact medical care. Deborah joined SR One in 2005 to establish the firm's European investment office. She brings to SR One extensive operational, drug development and licensing experience gained through numerous roles held in clinical development, medical affairs and business development during her more than 20 year tenure in the pharmaceutical industry.

Roel Bulthuis, Head, MS Ventures

MS Ventures is the strategic, corporate venture arm of the biopharmaceutical division of Merck KGaA, Darmstadt, Germany. Roel Bulthuis joined the biopharmaceutical division of Merck KGaA, in 2006 and started MS Ventures in 2009. Previously, Roel was a Director in the Biotech Investment Banking Team at Fortis Bank, where he was responsible for the origination and execution of a wide range of financing and strategic transactions in the biotech sector based out of Amsterdam and New York.

B&M: Debbie, Roel, let's start with the ideas. Where are the new sources of innovation? How can they best be tapped into?

Deborah Harland: It's a mix but if you're pinning me down, the best source of innovation outside of serial entrepreneurs are people that we've known either through our portfolio companies who are looking for their next opportunity and have diligence themselves. They may have a lot of things they might be interested in and they bring the next one to us.

Roel Bulthuis: I would absolutely agree that serial entrepreneurs are an important source of new companies. At some point you have to think about where entrepreneurs end and where academics start, there's quite a lot of overlap there. We do spend a lot of time building top scientific advisor boards for our companies and so there's a lot of interaction with the academic community and network.

That network typically leads to quite a lot of deal flow and then all of us are close to so many institutions where we access new deal ideas and because of the syndication aspect of venture capital there's a lot of sharing of ideas between corporate VCs at the early stage to build good quality syndicates. It's serial entrepreneurs, it's a network of scientific advisors, collaborators that are close to you and then there's deal flow from co-investors.

We get over 500 business plans per year, but a lot of the high-quality deal flow comes from those networks, from new ideas brought to us by people we have a relationship with.

B&M: I want to turn now to some of the secrets of follow-on funding, and I think it would make sense to first look at how the early stage investment environment has changed. Debbie, how you have seen the early stage investment environment change since the financial crisis?

Deborah Harland: It seems to a certain extent that particularly the role of corporate VCs has changed in that while a number of the more traditional VCs since the financial crisis turned their attention to their portfolios and later stage investing, the corporate VCs essentially stayed early or saw the opportunity or a mixture of both.

In the last 3 years we've done 12 series A or seed investments and 5 of those were in Europe. We're punching above our weight from normal early stage investments here in Europe compared to the US. That's certainly what's changed since the financial crisis, we've seen corporate VCs plugging some of the gap in early stage.

There's not enough capital from corporate alone to plug the gap completely but it's certainly an opportunity. We've since for instance, the recent exit of Alios to J&J as an example. That syndicate at Series A had 3 or 4 corporate investors in it and has seen that company all the way through.

B&M: How do you approach follow on funding?

Deborah Harland: I do think about follow on funding but I think about it slightly differently. When we're doing a Series A we aim to build the syndicate that will take the company all the way to exit. In your base case scenario, your follow-on funding is already in your syndicate. There's so much risk in this business just around the science and all of the things we've spoken about earlier about how to get all of your moving parts and the balls in the air around developing your product.

> "We are looking for an idea, a plan, some science which is really going to change the way that patients are treated, drugs are discovered, revolutionise the treatment environment."

Building a very robust syndicate of 3, 4 or 5 investors from the get-go and your Series A at least addresses the financial risk and it doesn't close the door on the opportunity to bring in your investors later should you wish to do so but it means that in the best case scenario you shouldn't have to. From my perspective and the whole SR One's team perspective when we're thinking about follow-on funding, we're thinking have we got the syndicate in place to actually bear that follow-on funding right from the beginning and our main concern is not to under-syndicate our deals and to put the company at risk of having a short fall of follow-on funding.

B&M: We've heard that one of the principle challenges facing CVCs is around syndication especially since the financial crisis. Roel, do you agree with Deborah that syndication is vital to solve the follow-on funding challenge? And if so, how does one go about building the necessary syndicates?

Roel Bulthuis: I agree with that point that there is absolutely no way that we're funding companies nowadays where we don't have the confidence that we have a group around them that can take the company forward without external funding. We do give a lot of attention to structuring financing cycles and business plans around data points that we believe would allow us to go out for potential external participation. It's a big topic for us, it is sometimes a challenge that depends on which field you are investing in, it depends on geography, it makes a huge difference whether we syndicate a deal in the US as compared to Europe for instance. If you go outside of those geographies it

becomes even more complex, we have a seed fund in Israel and if you think about the amount of specialised investor money that is available there you can imagine that could be a nightmare to syndicate deals there.

The focus in syndication, to get a group together that brings quality money and great people to the table that can move things forward, the biggest challenge I've come across in Europe right now is that there are very few investors left that are willing to invest in that early stage biotech.

Just like SR One we start our first round investment as seed as Series A stage, that's where we want to start to be part of the team and there's quite a few of the investors that due to the crisis did not show very good performance on their most recent funds and stepped away from early stage investment. Some of the more recent fundraising ventures in Europe are turning that around, people are starting to look at early stage deals again but there are quite a few of the European VCs that would traditionally be involved in seed and Series A deals that are now restricting themselves to in some cases just clinical stage assets.

The board capital has become smaller and again to syndicate deals that are early stage that makes them more difficult. If we look at the market for the last 2 years, the amount of money that gets invested in venture in Europe and the number of deals, it doesn't look that bad as in the years before if you specifically look at the early stage deals, new company creation, it's just a fraction of the money that goes into venture in that sense as in Europe and most of that money comes from the corporate VCs. If you think about it right now, between SR One, ourselves, and a couple of others, potentially taking the majority of activities around new company creation in therapeutics in Europe. I don't think that's a sustainable situation; we cannot just have corporate money responsible for that part of the market.

B&M: I'd like to turn now to the investments themselves. If you try to understand what makes for a successful investment and what will be one of those 6 of your 600 business plans that succeeds what would you say are the particular characteristics that you look for? What are the things that really guide your decision-making in terms of making it an investment choice?

Deborah Harland: It's hard to generalise, but I believer there are 2 key elements. The first one is this: we are looking for an idea, a plan, some science which is really going to change the way that patients are treated, drugs are discovered, revolutionise the treatment environment. Not incremental change, but really disruptive technology and that can take several guises. We are agnostic of format, therapeutic area, target, it's just all got to make sense from a disruptive messaging point of view.

The second element is the people. You might have the best idea in the world but unless you've got the right people, the right management team around it to actually shape it, pull together a plan, which actually has clear points of potential value inflection that whether it's your internal syndicate or whether you are going out to try new money that they can hang their hat on to show progress. Those are the most important 2 elements for me, for people that have the right experience to advance your technology, through to key points of inflection along the pathway in drug discovery. It can take several views and several forms. That sort of broad brush, as I said earlier we're agnostic with regard to therapy area so we're not specifically looking for a small molecule modulator of a certain set of targets. We know when we see it because it's a bit like buying a house, when you see it, you like it, you buy it.

B&M: Roel, would you agree? It's about people and disruptive technology?

Roel Bulthuis: Yes to people absolutely, for us one of the most exciting difficult and rewarding parts of what we do is helping, coaching, and supporting a management team in their work to build a company and to develop an asset and in their ability to build their teams, get additional talent on board and their ability to source expertise. Debbie described it in exactly the right way, you're going to have mediocre science and a great team is still a company but great science and a mediocre team is never going to be a company. That is a critical aspect of everything we do.

There's so many things to look at when you make an investment decision. One very important principle besides the cool science and the people when we make investment decisions, is that we want to see that we're actually developing a product and it may sound very trivial but we find that many of the business plans that we see in biotech are based on proving a scientific finding or concept and proving that to the extent that the expectation is if the science works then we have something to sell.

> I don't think attrition is a problem or a challenge. Attrition is a reality of drug development and what we do as investors is essentially find the most capital efficient and the best quality data to make that decision.

That is not correct in the current market anymore. This is not something we have to see in a first version of a business plan but we spend a lot of time with a company pre-investment to think about if you have that science and biology and maybe the chemistry that you've initially developed, if you think about the effect you are seeing with that right now, what kind of product could that generate in the end and how would that be positioned in the market, how are we going to convince a physician, a payer to take up that molecule and how are we going to convince them, what data do we have to deliver to do that. That is what we call the commercial relevance of that product.

When you work back from that, into your business plan, if that is the product I want to put on the market, that is the data I want to present to people so what do I have to do in clinical development and in order to do those clinical trials, what do I have to do before going into clinical development. In very many cases that gets you to different experiments then the experiments would do to prove your concept against the more conventional way of thinking about that. That is a critical part for us in selecting an investment; to make sure that we have that route towards commercial relevance.

B&M: So you're talking about beginning with the end in mind, so in other words knowing what you're end product is going to be before you embark on the mission. Am I understanding you correctly?

Roel Bulthuis: Yes and recognising there's going to be a lot of assumptions in that but you need to do that exercise.

Deborah Harland: I would agree with that because we beat up on our management teams a lot on what's the target profile? How are you going to show that you can reach that profile? What does that mean for your development path through to the clinic, where is the line of sight? Why should we be excited about that, why is a potential licensee or bio going to be excited by that? It's something that we focus on a lot with our early stage companies and as Roel quite rightly says, you can't expect that a very early stage company will have all of that nailed but the discipline of helping them understand how important it is to go through that exercise rather than just designing their next in vivo animal experiment and showing us that something works is really important and that's where it comes back to having the right mind-set in your management ‹eam to realise how important that is.

B&M: Let's talk about engagement with CVCs. What's the best route to get to SR One and MS Ventures, how do people reach you, what's the best way?

Deborah Harland: Certainly not by cold-calling us because we get so many contacts by email and by phone. The very best way is to find somebody who knows one of us and get a personal introduction. Roel touched on it earlier; some of the best deals, the more likely we are to take a call or meet a third party is if somebody else we absolutely respect because we've worked with them and we like them actually passes on a contact. If you don't know one of the partners personally, find somebody who does know us and get a personal introduction and trust me we'll take the call. It's a very network business, it's a very relationship based business, if somebody we like and respect passes on a contact we will certainly follow up on that contact. That for me is the best advice I could give

somebody if you want to get in touch with us.

I would hope the likes of Roel and myself and our colleagues in other corporate VCs, we participate on a lot of panels and we talk about this, about the types of things we are looking for. It's still slightly disappointing that some of the approaches we get just don't hit any of these things at all. That's the big mistake that people make, they come to us just as a core science and not with the whole opportunity or not even having thought through the whole opportunity.

That being said, I'm very happy, and I prefer to actually engage early with people and give them some advice on how they need to shake their idea for it to be of interest to us. We do actually spend quite a lot of time doing that and some of the investments we end up doing with individuals and eventually companies that we've been speaking to for over 12 months who we've been giving advice to, have perhaps gone away and shaped their idea, engaged somebody to join their team or a particular skill set that they were missing, thought through their product concepts a bit better, done something on a little bit of grant funding or something else and managed to move their idea on to a stage where it would be of interest to us. That's quite important, deals don't happen overnight, you have to engage people early.

If you can get our attention by getting a referral early on and get some feedback from us because what we'll quite often do, if it's too early for us, we will perhaps make a nice connection for individuals within other parts of GSK where they can get more advice or input either on the basic science or some aspect of their product development which helps them shape their business opportunity to come back to us in a few months' time.

B&M: Roel would you agree with Debbie that it is essentially all about the network and who you know and getting access to you is best done through an introduction?

Roel Bulthuis: If you think about the whole discussion we just had and the focus on people, relationships, teams, it's important for the CEO, for an entrepreneur to feel comfortable with the people they have on their board from the investment side. It's very important for us when we start to think about investing that we feel comfortable with the people we work with. If you think about the normal way of building relationships, it's counter-intuitive to think that that you come with a business plan and then on the basis of that business plan we make a decision to invest. It makes much more sense, through those introductions to build some level of relationship where people can understand where your expertise is and on that basis have a discussion about a business plan.

The other point of that is, to Debbie's point, if that business plan is an explanation of the great science that is there but doesn't touch on why that would be a business and what people who run that are going to do that is going to make it very difficult. There's still quite a few approaches where you see business plans that are purely focused on science and science is great and it's critical to anything that we do, but science is not business and we're not in the business of funding science, we're in the business of creating companies that are going to be successful and successful is mostly defined as creating a return on investment. We cannot do that by just funding science.

B&M: There is one challenge we haven't talked about very much, but in my discussions with venture capitalists over the past 5 or 6 months, it comes up again and again which is that of attrition. We know that in the industry at the moment it takes roughly 10 trials before getting to patients and time to recoup investment is shorter and shorter. One of the biggest challenges that you guys are facing is not killing projects early enough. Is this something you would agree with Debbie?

Deborah Harland: I think so yes and I'd like to think also this is where having corporates in your syndicate can help you especially when we see something that might be a seed opportunity. Apart from all the other things we've talked about, does it look like it could be a good investment, we think about can you design a killer experiment and it doesn't really mean can you design something which shows that you're hypothesis is proven, it's can you design something which really challenges your hypothesis and it's a definite no if it's negative. That actually is very hard for people to think in that way but designing a killer experiment is really important and we certainly think about that all the way through our investments to try to address the issue of attrition as best as possible.

We want to fail for science, we don't want to fail for other reasons. We want to fail because the scientific hypothesis did not pan out. We don't want to fail because we got the dose wrong or that the manufacturing batch wasn't the correct one when we took it into the clinic. We want to fail because the science hypothesis didn't come to fruition. The

most rigorous way that you can test that is the most important discussion you can have and challenge as an investor board member with your management team. Design rigorous experiments that are go and no go experiments. The perfect answer doesn't exist but if you can keep that in mind as part of a management team and as an investor group at least if you fail you will fail for the right reasons. We'll also quite often as Roel was saying, when we're thinking through business plans and we're syndicating together as investors, we're tranching investments to what we feel are key data read outs and value inflection points which are usually based on some sort of go, no go decision which hopefully are the most rigorous tests of the hypothesis to date.

B&M: Roel how do you think you would tackle the attrition problem?

Roel Bulthuis: I don't think attrition is a problem or a challenge. Attrition is a reality of drug development and to Debbie's point, what we do as investors we essentially find the most capital efficient and the best quality data to make that decision whether we know where we have to make the decision to start the programme.

There's no difference between biotech and pharma in the sense that there is a high risk in drug discovery and development and you have to deal with that but that's why we are in business and for our CEOs, for our management teams the best quality management teams are the people who are work with us to get to those decisions and they are linked to make hard decisions about programmes and people who you will see again.

To the earlier point of deal flow and serial entrepreneurs, that quality gets recognised so if the reality is the drug that you are developing is not a good programme and you have a data driven way to make that decision, you have a management team that has done that for you, then you will support those people again. ■


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Achieving the follow-on: Raising Series A from existing investors and attracting new

Simon Westbrook, Chief Executive Officer, Levicept

Levicept Ltd is an asset-centric UK-based biotechnology company developing a novel, safe and efficacious biological therapy (LEVI-04 [p75NTR-Fc]) for the treatment of chronic pain. Levicept is developing LEVI-04 (p75NTR-Fc), a novel biological agent for the treatment of chronic pain. It modulates the clinically-validated neurotrophin pathway leading to profound, yet safe, analgesia.

In October Levicept secured £10m follow-on funding from a syndicate of investors plus a further £2.4m from Innovate UK. We caught up with Simon Westbrook, its CEO, to discuss the potential of Levicepts asset and recent funding success.

B&M: If we can get your elevator pitch to really understand your organisation.

Simon Westbrook: Levicept is a virtual asset centric biotech developing a novel biological for the treatment of osteoarthritis and chronic pain. It works on a clinically precedented pathway, the nerve growth factor pathway unlike the anti NGF antibodies which have been shown to cause rapid progression of osteoarthritis (RPOA) in Phase 3 trials Levicept's molecule provides profound analgesia whilst not causing RPOA.

B&M: You mentioned that unique angle that the research is covering. Is that what is really giving your research a competitive advantage?

Simon Westbrook: When I was a Pfizer I used to work on a compound called Tanezumab which is an anti-NGF antibody. The whole class was expected to make about $11B a year for the treatment of osteoarthritis. OA is very similar to where rheumatoid arthritis was about 10 years ago but OA is 10 times bigger and it's just waiting for a compound to be safe, efficacious, and have something like an antibody or a biological so they can do a once a month treatment where patients inject themselves and have analgesia.

The anti NGF class of molecules were put on clinical hold in 2010 and that was initially due to the fact that patients, albeit about 5%, where going on to hip replacements and the FDA closed the class and put it on clinical hold. Initially they thought this class would make about $11bn a year however this is relatively un-realistic due to anti-NGF induced RPAO. So when I came up with the idea that my molecule wouldn't cause RPOA yet be analgesic: I went to Index Ventures (Kevin Johnson) and said I can differentiate against the Tanezumab class of compounds and they basically said here's some money, go and do it and show us.

We designed the killer experiment: with the objective to have a clear Go/No go decision point for the company. We made Tanezumab, we made a biosimilar of Tanezumab exactly the same amino acid sequences as the Pfizer compound, we made P75NTR-Fc which is our molecule and we developed a pre-clinical model of osteoarthritis and we tested the compounds with the goal to demonstrate that (i) Tanezumab causes RPOA

(thus anti-NGF induced RPOA is mechanism based) and (ii) that p75NTR-Fc was as analgesic as Tanezumab yet doesn't casue RPOA.

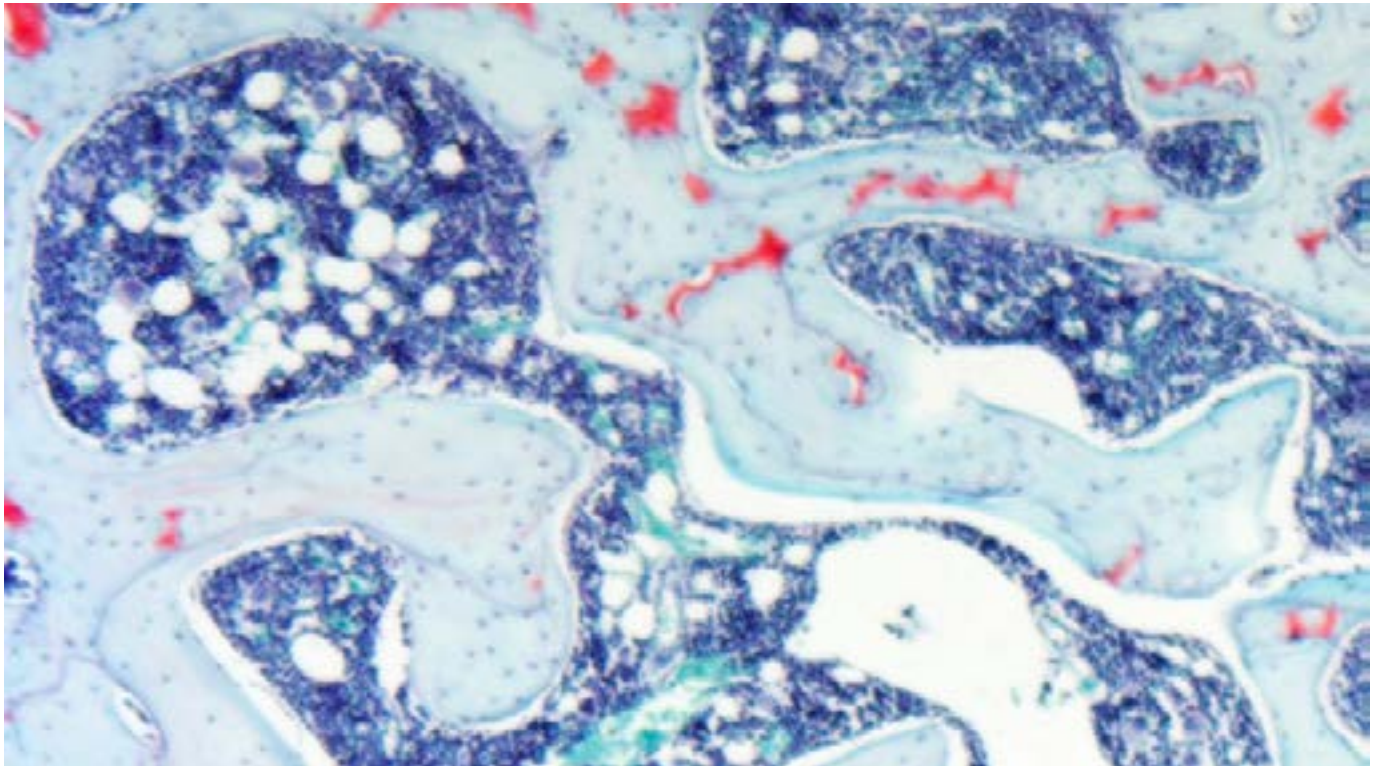
The killer experiment was successful we demonstrated equivalent analgesia to Tanezumab with p75NTR-Fc but unlike Tanezumab p75NTR-Fc don't cause RPOA rapid progression of osteoarthritis and that's our real key differentiation point.

The mechanism of action of p75NTR-Fc is different to that of anti-NGF antibodies; we are still understanding the mode of action however, unlike anti-NGF antibodies which ablate NGF signalling, resulting in analgesia and RPOA; p75NTR-Fc maintains neurotrophin homeostasis leading to analgesia and maintenance of bone function and repair.

B&M: What are the associated challenges of achieving progression with this treatment? Do you see satisfying the Regulators as one of your key objectives?

Simon Westbrook: Unlike a fast follower where you would probably cut a lot of corners and get into the clinical as soon as possible we are understanding the pharmacology of our molecule in great depth. In doing so we are conducting pre-clinical experiments which for a fast-follower are not entirely necessary. We've taken a step backwards and started to fill in all the gaps that a regulatory authority would want to see and then use this information to explain why p75NTR-Fc has alternative mode of action to that of the anti-NGF class of molecule.

In addition to the regulatory concerns with the class



we are also ensuring our development package is extremely attractive to M&A so again we've taken a step back and we're starting to think what would someone in big pharma want to see to show differentiation in the NGF pathway.

B&M: In terms of the funding capital side of things, it's well noted that you've recently raised £10m from a syndicate of investors, Index being your sole original investor and then additionally Advent Venture Partners and Gilde Healthcare Partners. Can you briefly explain how that arrangement came about?

Simon Westbrook: Index Venture seed fund their companies with the sole goal to do the killer experiment: The killer experiment is designed to give a clear Go/No go decision for the company not grey but a clear black or white. Sure this strategy may give a false negative as the hurdle is significant and companies may be dropped unnecessarily. In Levicept's case the Go/No go decision point for the seed investment was to demonstrate differentiation over anti-NGF induced RPOA. It took about a year to achieving this milestone following which we decided to progress the molecule to the clinic demonstrating PoC in Phase 1 in patients. Consequently, we decided to raise Series A compromising of £10M from investors (Advent Ventures, Gilde Healthcare and Index Ventures) with

£2.4M from InnovateUK (Biocatalyst Grant).

There are few VCs that truly operate in early drug development space and Levicept is pleased to have the backing of Advent, Gilde and Index: these VCs not only support the company financially but provide significant support through their networks. Being a virtual company the network of expertise offered through Advent, Gilde and Index is essential and almost impossible to put a price upon this; for example Index SAB comprises of senior executives of JnJ and GSK who provide significant advice both strategic and scientific.

B&M: What was it that was attractive to those investors? Was it the pre-existing results, the story to date, the long term goal of M&A that resonated?

Simon Westbrook: Very much so. I think it was the combination of the compelling story of differentiation in a clinically precedented pathway, market potential and 5 or 6 big pharmaceutical companies all with their anti-NGF candidates on clinical hold for the past 4 years.

B&M: Index invested at seed phase, was it a given that they would participate in this series A?

Simon Westbrook: Index were very supportive. The key for Index is to perform a well controlled killer experiment and at that it's a decision whether to take the company forward or not and support Series A funding. In the case of Levicept we had a clear Go decision following the killer experiment and decided to raise Series A.

> "A proportion of our total spend comes back from the grant which is brilliant. It didn't make raising cash easier but it's nice to have that support from the government."

B&M: How does the management of the syndicate sit? How does the dynamic play out?

Simon Westbrook: Levicept is a virtual company so we outsource all our work. Kevin Johnson of Index Ventures and myself are currently the only employees and whether we employ other people in the near future or use extensively consultants is something we will decide when appropriate. The virtual asset centric biotech model is a vehicle that Kevin and Index have been refining of the past 5 or so years. Having access to the extensive network of Advent, Gilde and Index is essential for a virtual company like Levicept. We have access to experts in the field, consultants or employees of other companies that work in this space and have an outstanding understanding of the biology, pathway and drug development. Gilde for example, are helping us identify a Phase 1 unit in the Netherlands where we may perform our POC study in patients in our Phase 1 setting.

Advent for example, have Alan Watts as a Venture Partner; Alan was one of the original team at Genzyme consequently he brings significant value to the company both scientifically and strategically. A further example of the support is having access to Index's SAB compromising of JnJ and GSK including Paul Stoffels and Moncef (for a drug discoverer these meetings are like a therapy session you have the opportunity to gain knowledge an insight from some of the best). In conclusion having access and support form a wide range of network is essential; if the VCs just gave us cash and said see you later and closed the door; you'll fail.

B&M: So if we focus on the £10m you've raised, I assume this sum is to go towards the proof of concept studies?

Simon Westbrook: Series A comprises of the £10m from the 3 investors plus £2.4 from InnovateUK and

that money will support us for the next 2 ½ to 3 years to get from where we are to end of Phase 1 POC. We've planned all the studies extremely well: running a virtual company we outsource all of our activities to top tier CROs with the goal to do the study correctly once and no need to repeat it.

B&M: Securing the Series A along with the InnovateUK grant proved a shrewd move. Can you briefly summarise the process you went through with InnovateUK to secure the £2.4m?

Simon Westbrook: We decided to apply for the InnovateUK grant while raising Series A; firstly this strategy fits perfectly with the Biocatalyst fund ie. providing a significant leverage as well as supporting companies progressing novel mechanisms through the drug development pathway to achieve PoC.

In April we were granted a conditional offer letter on the basis that we raised the additional £10M to enable us to achieve our overall goal of progressing p75NTR-Fc to PoC in Ph1. The support of the government provided non-dilutive capital which will significantly enable to the programme to achieve it over-riding goals.

B&M: What are the lessons you learned from that process?

Simon Westbrook: The InnovateUK process, in Levicept's case, may have been slowed down, compared to other companies. As Leviept is a virtual company with >95% of our spend being contracted to CROs or consultants; this was unusual business model for InnovateUK and we had to explain why this business model was being pursued rather than building a mid-sized biotech with a pipeline of products. Explaining the recent changes in the pharmaceutical industry and the virtues of running a single asset company and how this fits in the bid pharma food chain enabled InnovateUK to understand our business model including Levicept's short and longer (2-3 year) goals.

B&M: To close the interview, you've the capital in place, clear goal of proof of concept, what's going to get you out of bed in the morning, what's going to keep you excited.

Simon Westbrook: I'm the inventor of p75NTR-Fc for the treatment of pain and founder of Levicept. When I was at Pfizer I discovered how and why anti-NGFs were causing RPOA and discovered a safe and efficacious alternative in the NGF pathway, I spent all of my redundancy getting Levicept off the ground, my heart and soul is in this company to ensure that we drive the development of p75NTR-Fc to Phase I achieving proof of concept in patients and one day a new drug for the treatment of chronic pain. ■

IPO: a route to superior growth

John Burt, Chief Executive Officer, Abzena

Abzena operates a balanced business model with growing revenues from its service business and the potential for significant future growth through royalty bearing licences for the application of its technologies to biopharmaceutical products. The Group's technologies and services are provided through its wholly-owned subsidiaries, PolyTherics and Antitope.
Biotech and Money caught up with John Burt, the Chief Executive Officer of the group to talk through what has been a very productive an successful year to date.

B&M: A good place to start would be to understand a bit more about Abzena, and more broadly speaking a little bit more about how the PolyTherics and Antitope elements fit into that.

John Burt: Abzena came about from the combination of the PolyTherics and Antitope businesses, creating a group which is focused on enabling better biopharmaceuticals, by which I mean antibody and protein based therapeutics. We have kept the two businesses as separate entities within the group, retaining the company brands, because they've got strong associations for our customers and strong associations with particular technologies. Abzena was created as the group holding company for Antitope and PolyTherics and we IPO'd the company in July of this year. Our business model is to be a service and technology provider to the industry. It is a mixed model whereby we receive revenues for services and fees, milestones and royalties from technology licensing. A really exciting element of our model is the potential for our technologies to become embedded in products, such as with antibody-drug conjugates (ADCs) for cancer treatment, from which we would receive milestones and royalties into the future.

B&M: In terms of the broad range of existing technologies and services that you offer, what is it you feel gives Abzena the unique advantage over your competitors. Is it the broadness of the offerings of those companies?

John Burt: The breadth of Abzena's offering is a clear competitive advantage, and within the business each of our technologies has its own competitive differentiation and USP. On the immunogenicity assessment side, we are the only company, through Antitope's EpiScreen service, that can really demonstrate the correlation between the output of our ex vivo assays with reported clinical immunogenicity of biologics. This correlation plus the depth of experience in the immunology field and the quality of service provided is valued highly by our clients. On the Thiobridge technology, it's about the stability and homogeneity of ADCs that are developed using our technologies. There are competitors in each of the technology domains, but we believe our offering is differentiated at one level or another, and this is evidenced by the level of repeat business we achieve with our customers, which include the majority of the top 20 pharma companies as well as many biotechs.

B&M: What do you see as the greatest opportunities in terms of the markets that these technologies and services are offering?

John Burt: The ADC area is a very significant and active field at the moment; there's a lot of R&D investment going into the ADC space, and having 2 products approved is really validating the concept of ADCs. With the first generation of products you can quickly recognise the limitations and the need for the next generation of technology to solve those problems. For example, the stability and homogeneity we can bring to ADC production with our Thiobridge linker gives us a differentiated offering and a significant commercial opportunity. The linker between the antibody and the payload plays a crucial role in creating an effective ADC. Our technologies can also improve the antibody element. In Antitope we've got the ability to reengineer antibodies to make them non-immunogenic and we've got the capability to produce the manufacturing cell lines in which to produce them. So it's actually being able to address all of the component parts of an ADC without doing the basic disease biology or understanding the tumour types. We leave this to our partners, who are the experts in disease and cancer biology. We provide them with the tools to develop the products.

However, we operate in the whole biologics field, and whilst many of our partners are active in the oncology field, especially with ADCs, our capabilities in enabling biopharmaceutical development are as relevant to cancer immunotherapy, anti-inflammatory and auto-immune indications to name just three very significant fields. There's an awful lot of opportunity right across the biologics space.

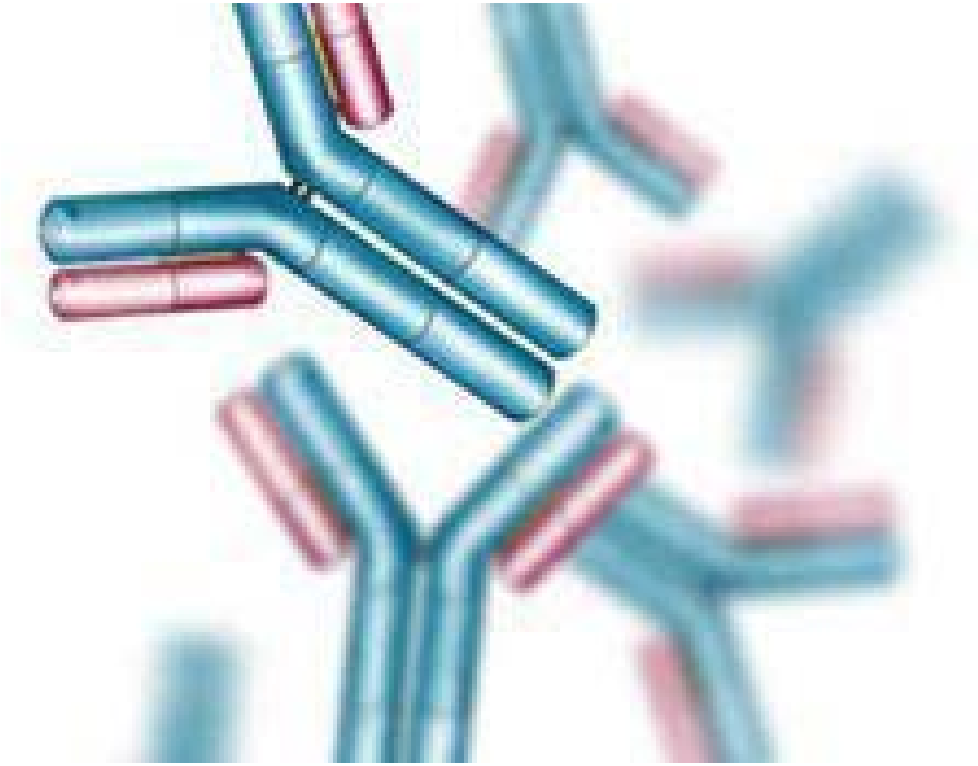
> "Having the revenue component and a profitable service business showing a growing revenue trajectory is one of the pillars underpinning the business and that's a very strong message for our investors. It limits the downside."

B&M: Do you have any critical milestones or timescales that you have coming up which are focusing on any of these areas in particular?

John Burt: We're getting greater and deeper traction for our Thiobridge technology with major pharma and biotech companies and so we expect translation of that interest into Thiobridge ADCs being developed towards the clinic over the coming months and years. Those deals and the progression of those programmes will be important for us. We already operate a profitable service business but looking a bit further ahead and over the long term we see licensing revenue coming into play and becoming more important. We expect to see royalties coming into the business from those products which have relied on our technologies during their development. That will be a critical inflection point for our investors when they start to see that royalty revenue coming in on top of the service revenue although as these products progress through development and towards approval, the value of the potential royalties increases.

B&M: Specifically on the technology side, are there are any challenges that you foresee to achieving the milestones or goals that you want to see in the future?

John Burt: With ADCs it's a constantly evolving field and it is also a very collaborative field. There are established companies like Seattle Genetics and ImmunoGen, which have very established technologies, primarily focused on the payloads; then you've got the antibody providers who are either big pharma or the biotech companies. There are new technologies emerging and designed to bring these two components together and for us the key is making sure that we are at the forefront of new innovations in those technologies so we can enable better ADCs to come through. Technology investment is a significant part of our business and we will continue to invest in and



expand our tool kit of ADC technology and of different payloads we can offer to our partners.

From the Antitope side, immunogenicity assessment is now a routine part of the pre-clinical development process for our partners so it's not about significant technology development. Commercially, it's about our partners across the major Pharma's and the biotech companies using our services time and time again.

B&M: Do you think there will be anything that will interfere with you being at the forefront and being able to innovate and being able to further invest in the ADC technology development.

John Burt: We have been through a major transition over the past year or so: as PolyTherics, we completed the acquisition of Antitope and the accompanying financing that raised £11m of new capital last year, and then a successful IPO just recently raising another £20m. We have the capital to enable us to continue to grow the business.

The recent relocation of our PolyTherics business from London to the Babraham Research Campus just outside Cambridge - where Antitope is located - also gives us more space and a critical mass within the team to continue to grow and leverage the synergies that exist between each of the technology domains. We have teams doing the protein chemistry and the bioconjugation as well as synthetic chemistry to build the ADC reagents, working alongside the molecular biologists doing the protein engineering, cell biologists and the immunologists. It's actually leveraging that full breadth of capability which we think is almost unique in a small life sciences company. We've got the pieces in place at the moment.

B&M: On the technology side of things what have been your biggest successes been to date this year, what are the things you're very pleased with over the last 6 or 7 months?

John Burt: On the ADC side, what we're really pleased with is the adoption of Thiobridge technology. More and more pharma companies, if they're active in the field, recognise the limitations of the existing technology and are therefore seeing the benefit of Thiobridge. They start with small programmes as they engage with the technology but we're seeing that traction coming through. We are really excited about the future potential for the adoption of Thiobridge technology within the ADC community, that's really significant.

Also, company scientists are increasingly recognising the value of Antitope's Composite Human Antibody platform for re-engineering antibodies so that they're non-immunogenic. The industry has talked about the humanisation of antibodies for many years, many approaches are described as generating human antibodies but in reality, as they have not been derived from the patient's own immune system, they are not truly human and they still have the potential to generate anti-drug antibodies in patients.

Because of this, we're now seeing greater interest from companies wanting to re-engineer those antibodies so they're non-immunogenic, and also that, with further development, the resulting antibodies are advancing into the clinic. There are now 5 programmes in the clinic that came out of the Composite Human Antibody platform: Gilead has 2 antibody programmes in the clinic, including its Phase 2 simtuzumab antibody, Opsona Therapeutics has a product in Phase 2 and there are other programmes moving forward at NKT Therapeutics and Adheron Therapeutics (Post-interview note: a sixth Composite Human Antibody is now clinical development following the disclosure that Vascular Pharmaceuticals has initiated a Phase 2 clinical study of VPI-2690B for diabetic nephropathy). The progress of these programmes is a real validation of our technology, and they've got potential to yield royalties back to Abzena, which gives us the opportunity to benefit economically from the success of those products. These will be small percentage royalties, but royalties without us needing to fund the development.

The model is sometimes described as a 'picks and shovels business with a royalty on the gold' because we've got that royalty interest in those products that are moving forward. There's a whole pipeline of other programmes still in pre-clinical phase in our partners' hands which will feed into the clinic, and watching the progression of those products is quite exciting. It's about better biopharmaceutical products getting to patients and making a difference, and us providing some of the tools that enable those products to translate to patient benefit. I'm excited on the technology side but ultimately I'm excited about what we can do for patients.

B&M: Coming onto the IPO, congratulations on the recent listing on AIM in July, raising £20m in the placement. You've talked a little bit about using the IPO for expansion of the business but can you go into a little bit more detail as the rationale behind the IPO beyond that?

John Burt: Our business model is about being a service and technology provider, it's a sustainable business model. We're not a company that's building ourselves up to flip into a trade sale. It's actually building a sustainable business with revenue generation from a profitable service business and the trajectory for the licence revenues, and I'm very excited about for the future.

There's the opportunity to continue to expand and grow the business and increase the potential upside for investors into the future through further acquisitions. We needed additional capital to enable this strategy and one way to raise capital is through public markets, which for Abzena was through an AIM listing. The other opportunity a listing provides is to use our quoted stock for acquisitions. It's much more attractive getting into an M&A situation where we've got publicly quoted paper and a capital structure that we can use.

These are the drivers for going Abzena going public. Of course, there's also the downside in that you're more subject to public scrutiny but we're a confident business and therefore we're happy to subject ourselves to that scrutiny; that's the price you pay for having the capital and the paper.

B&M: We interview a lot of companies who have approached IPO and they have a hybrid model where they are generating revenues. Do you find that helped you in discussions and the way you approached the IPO, that you can show a very healthy balance sheet when engaging with those public markets?

John Burt: Having the revenue component and a profitable service business showing a growing revenue trajectory is one of the pillars underpinning the business and that's a very strong message for our investors. It limits the downside. The upside, the real excitement, comes from the technology licensing piece, but it's having that revenue component to talk to investors, so they can see that we're not only going to be spending shareholder capital as we go forward. The capital we raise is about expansion for the business, working capital, not product development capital which would bring in the binary risk. It's evidence of the fact that we're not a binary risk player, as so many biotech companies are. Binary risk is what some investors are frightened of in biotech in the public market.

B&M: Would you say it's a fairly straightforward process or did you find that key elements or obstacles you had to overcome?

John Burt: It was a learning experience for me, I've done many types of deal within the pharma and biotech industry but hadn't done an IPO. In our case, one particular challenge was that we had recently created Abzena as the new group company and so there was a group reorganisation that we went through while also preparing for the IPO. Before Abzena was established, the parent company was Polytherics Ltd

and it had made 2 acquisitions: Antitope in 2013 and Warwick Effect Polymers back in January 2012. There were some complexities in the share capital structure for PolyTherics that had developed over the years, which we had to work through so we could get the clean capital structure that came to the market as Abzena. But we got through it thanks to a great team on the management side with good corporate finance and legal advice to steer us through the process.

B&M: Obviously it was a very successful experience for you. If you could sum up things as briefly as possible, what were the success factors?

John Burt: We spent a lot of time thinking through the positioning of the business we were bringing to the market and how to present to the investors – what was the story we were selling and why would they make money out of investing in Abzena. We have a strong service business that's dominant in its field particularly on the immunogenicity assessment side. There's also the upside that comes from the technology licensing portfolio, so overall it's that mixed service and technology licensing business model. It was crucial that they understood what we meant when describing Abzena as a 'picks and shovels business with a royalty on the gold' and what that actually meant to them in terms of what we offer. Getting that message right that was fundamental and this was supported by having strong investor support, particularly from Imperial Innovations and Invesco.

B&M: So one success factor is the strength of your story, you found the story that resonated with investors. The second element is the strength of the investment that you had previously, your

investment track record. On the investor story, what do you think it was that resonated? You mentioned having the service income but was there anything else about the story.

John Burt: It's about being a business first and foremost. It's not a project and it's not a product development play, where there is binary risk. It's almost 'We're a business that incidentally is in the life sciences space because that's what we do'. My previous company Thiakis was the complete opposite. That was a product development company, developing a single product. It was a project and we sold the company to Wyeth. It wasn't a company that would ever have IPO'd because it was never appropriate. If you're going to go down the route of raising investor capital with a view to building a sustainable business and going to market you've got to think of yourself as a business: top line, bottom line and cashflows.

B&M: You've always had the intention once the plans were in place and you wanted to move the company forward to do an IPO but was the timing perfect for you? Did you feel that you brought it forward because you mentioned earlier you thought that the markets might get tighter as the year goes on. Is it more the case that it suited your timing now or did you naturally bring it forward?

John Burt: It suited our timing now, it was a natural next step in the evolution of the business. In some degree the IPO was frustrating because the development of the underlying business and pursuit of further acquisitions got put on hold while we went through the process. But, it was a necessary step to get to where we wanted to in terms of the capital, capital structure and the publicly quoted paper. It fell at the right time in that evolution and the trajectory we were on as a business.

B&M: We talked about the strengths of the technology and the services, now you've relocated to Cambridge where do you see your major focus lying over the next 12 to 18 months. You've gone quite granular on Thiobridge in particular but where do you see the greatest opportunity now for Abzena now you are a public listed company.

John Burt: One objective is to continue growing revenues from our service business, and ensuring that we've got the team in place with well-equipped labs to be able to meet customer demands. Another strategic goal is to make further acquisitions to expand our offering and so we anticipate pursuing these transactions as the opportunities arise. Adding complementary capabilities to what we have now will give us more touch points into customer programmes and will expand the business in terms of the top and bottom lines now and into the future. It's the opportunity to expand that business and really deliver on what I see as our mission to enable better biopharmaceuticals. If we have all the services and technologies that our partners want and need, they'll be able to create better therapeutic products and patients will benefit. We'll have a very successful business as a result of that.

B&M: Do you see now that your company is publicly listed do you see a major change in how you communicate with your investors and the wider public market itself?

John Burt: It changes the nature of the dialogue you have with investors because we're publicly traded. We have a long relationship with Imperial Innovations, Invesco and Woodford Investment Management, as well as our other pre-IPO investors, but being public now means we need to communicate with them in more formal way as there are other investors and potential investors to consider. They understand this and we understand that we cannot communicate everything that's really exciting with the business until the right time in the future.

B&M: To round off the interview, are there any additional thoughts you'd like to add?

John Burt: A message that it's an exciting time for UK life sciences. There's a lot more attention being paid to the sector. Recognition of the strength of the science base in the UK has been energised by the Pfizer bid for AstraZeneca as well as by companies that have come to the market, including Horizon Discovery and us. There is a different business model that's emerging, it's now not just a sector that has typical biotech binary risk with the potential for success but also the potential for failure. There is now diversity in the UK life sciences eco-system, and recognition of the strength of what we have to offer the global industry. These are really exciting times within our industry. ■

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Feature: Attracting Follow-On and Growth Capital

Jeanne Bolger, VP, Venture Investments, J&J Development

I'm representing JJDC, the corporate venture of J&J based at the London Innovation Centre. JJDC is the longest standing venture fund in any industry. Nowadays it's very much a strategic fund, investing in areas that are of strategic interest to J&J's businesses in pharmaceuticals, biotech, medtech and consumer. The innovation centre's are really about embedding ourselves in a local innovation eco-system and partnering very closely, not just from a venture investment point of view but also broadly to collaborate and find ways to advance innovation with the innovators on the ground. What's unique about our model is that we're not seeking to do deals and chuck the innovation over the fence to be swallowed up by big pharma.

Hakan Goker, Investment Director, MS Ventures

I represent MS-Ventures the strategic venture arm of Merck Serono. Most of our investments are drug development projects and companies - a total of 20 young companies set up since 2009 - and we are running €150m in different baskets. What we are looking to do is to make sure there is enough smart money on the table that can help create entities that can push early inventions to a more financeable level that we can still follow with the venture money that we have and we aim to hopefully turn them into products.

Nigel Pitchford, CIO, Imperial Innovations

I'm the Chief investment Officer of Imperial Innovations. Imperial Innovations is a quoted company on AIM with a market cap of about £650m. We were born out of Imperial College's tech transfer office and we still perform tech transfer for Imperial College, and have a pipeline agreement in place to allow us to do that through to 2020. On top of that, we've also built an investment business that now has about £400m of assets under management with about £170m of cash available to us to invest.
We're a balance sheet investor so we have no time limits on our funds at all which allows us to invest very early. Ultimately, we have a view that we'll add significant value to those businesses as they evolve. Not only are we not time limited we're also not capital limited.

B&M: Let's talk about the investment environment for early stage life sciences. What do you think has changed since the financial crisis?

Hakan Goker: The whole thing appeared to have collapsed and for private venture the amount of money that they could raise from their limited partners reduced drastically as people shied away from alternative asset allocations. As those guys struggled to raise funds, they couldn't put money to work in early stage companies and quite a few companies suffered as a result. There was a bottleneck, a bit of an evolutionary culling that happened at that time and one could say also that it was perhaps a good thing, it sharpened people's thinking, their sense of what is needed in the market.

Entrepreneurs are now a lot more careful about where they allocate the money they have. On the financiers side, corporate venture funds and funds like Imperial, are now playing quite an important role in syndication of pharmaceutical development companies, early stage biotech and medtech.

In a way it's a positive trend. We hear a lot of negative noises from time to time that the space is dismal but if you look at activities that have taken place over the past year to 18 months it's actually been quite good and we hope that will continue.

Our allocations are not getting any smaller and as corporate venture funds, we work together quite well with other ones and thankfully the independent venture firms are not as scared of corporate venture firms as they used to be before.

B&M: Nigel, would you agree?

Nigel Pitchford: Yes, there's certainly a changing environment. Back in the late 90s there were quite a lot of financial investors around and they were able to go and raise funds and invest that money without corporates largely. Once or twice you would bring corporates in but there was always that fear of strategic intent and having to give away the crown jewels to those investors. That pool of available capital definitely shrunk post 2001, so since then European venture capital as an asset class has been shied away from by most people that the VCs are trying to raise money from.

That's made it difficult for many of those firms to continue to survive and to raise capital. That also came to a peak around the financial crisis which was when a lot of asset classes all imploded at the same time. What you've seen as a continuing evolution has been where once there were very few corporate investors back in the late 90s now they're virtually everywhere. Strategic intent is not an issue for us when forming syndicates because we believe it is actually good to involve pharma as it's useful for us to be able to bring that perspective to play around the companies. Also, pharma people are doubling or trebling up in these investments and so you know that there's a reasonably independent barometer there for when it comes to the crunch when these companies get sold.

What you have seen is a growing decline in the number of well-funded financial investors in the traditional 10 year fixed life model. You've seen the growth of corporate VC and an increasing growth of what is now an evergreen approach to venture investing, be it ourselves where we've raised over £300m in the last 4 years or Syncona who have raised £200m or others who are approaching life much more from an evergreen perspective. We'll continue to see a trend towards longer life funds or evergreen funds alongside corporates who can add value in a different way but who are more comfortable about being there together and a few number of just straight financial investors.

B&M: Do you see that as a positive trend?

Nigel Pitchford: I do, particularly around life sciences. We all know there are very few investments that can come to fruition within the time frame that a fixed life fund normally operates. Having the ability to stretch beyond that enables you to get involved early. There is still a role to play for some of those VCs that still have that fixed life timeframe, but a lot of the heavy lifting around much earlier stage stuff is going to be done by people who can survive the course.

B&M: Jeanne what are your thoughts on this trend?

Jeanne Bolger: If you think about the life cycle of the companies it's really beneficial in the long-run for those companies that the pool of investors and money that's out there has a longer-term view and is either looking for a strategic exit or for an evergreen view to see those companies become self-financing and sustainable. This isn't typically what a 10 year fund is able to do, they're not able typically to come in as early as corporates, as evergreen investors that have grown out of the academic sector can actually do.

"It's really beneficial in the long-run that the pool of investors and money that's out there has a longer-term view and is either looking for a strategic exit or for an evergreen view to see those companies become self-financing and sustainable."

B&M: If we look at the current environment, there is an IPO window but it does appear to be rapidly closing. What do you think will be the impact of this on your own investments?

Nigel Pitchford: In some senses the IP window is a bit of a fallacy because IPOs are available to companies that are strong, look as if they have good propositions and have a rationale case to put to investors about coming into them at a particular point in their lifetime.

Attitudes to risk have changed and risk changes the profile in the market generally but good companies will always be able to get IPOs away. If you look at the US the track record is that even during down cycles and downturns from 2005 through to 2008 there were still IPOs that were getting away for companies that are now actually thriving in billion plus organisations. Good companies will still get out.

It's probably that next group of companies who are good enough but not outstanding that we're bringing to that point now where the investors are looking to transition away and to be able to bring in public money to help support those through the next phase. It's those companies that are seeing the ability to raise capital move forward. Who knows? 12 months ago we thought it was closing and yet we're still getting companies out.

B&M: Hakan, what are your thoughts on the IPO market?

Hakan Goker: In Europe, apart from a very few, it hasn't been that active for the companies that we deal with most of the time. I don't think it's going to change much for the companies. It closes one potential door at some stage but how realistic that door was anyway is

questionable.

In Europe there is a bigger problem in that we have essentially no specialist for early stage companies and life sciences. You have a lot of generalists, but the people who invest are not necessarily the best to gauge the risk factors in early stage companies. That's why the fear factor is still pretty high in Europe.

Jeanne Bolger: For all of 2013, PwC's data shows that there were 68 life science IPOs in 2014. Those IPOs raised a total of $4.7bn but of those 68 companies that went out, 55 of them were in the US and of the capital raised, $3.9bn of the $4.7bn was raised by US companies and when you look at the remaining $800m, $337m of that was Circassia.

Nigel Pitchford: Good companies raise money!

Jeanne Bolger: It's not the European IPO market; by any definition, life science companies are pretty weak really and so what does that reality mean for companies that we are all investing in in Europe? If they really want to go down the IPO route and the company and the investors collectively feel that's the right way to go they need to meet certain criteria. They should be approaching commercialisation or they're in phase 3 studies, or they've got backing with the collaboration partner and they've got cash on the balance sheet. If all of the conditions are right then probably the US market at the moment is the right thing for them to do, to pursue an IPO and if they don't meet that or they really feel they have to go after a European market IPO, you've got to think about how does that measure up to another financing round or other methods of funding, doing a BD deal, or non-diluted financing, which doesn't look to me like a really fantastic option at the moment.

Hakan Goker: It's a very risky financing mechanism for early stage companies.

Jeanne Bolger: That's what it has become, not a point of liquidity and an exit, but another financing route for companies that are still very much at development stage.

B&M: Do you see yourselves changing your strategic approach given the current environment?

Hakan Goker: We don't see that we're changing the strategy any time soon. What we have done as Merck Serono Ventures in the last 4 years seems to be working pretty well.

The old model of financing a company and hoping that it will be taken out in cash up front is most probably dead. That also goes back to the model of either evergreen or corporate venture where the funds that come back do not have to be handed out straight away to the LPs so that makes that type of exit more acceptable to a lot of people.

We have done spin-outs from Merck Serono when

> There is certainly a sense that investors will pull together in order to give a smaller number of companies the maximum opportunity for them to deliver rather than spread their capital very thinly.

certain therapeutic areas were decided not to be strategic any longer, some of them very early, some of them a little later stage and we have managed to syndicate some of those. On other deals we have formed companies around new science that comes out from academic institutions and build syndicates around those. That model for us seems to be working and we hope to do more of those.

Nigel Pitchford: Our model is probably not changing massively, but it's continuing to evolve. We have the ability to stretch further in terms of our invested capital and where our positions might be exposed to and we may extend that further still, we may extend geographically further still but at the moment we're pretty focused on what we do.

Jeanne Bolger: We're certainly driven strongly by the science and we need line of sight to a product. I'm speaking specifically from the pharmaceuticals point of view, but it's also true in the medtech or consumer arena.
We are strategic investors and we're looking to invest in things that we believe with our help and our input can become ultimately products for J&Js pipeline in one of our businesses. We will invest in things where we think we can add value and we can bring something to the table and make a difference and achieve a success together.

B&M: We've heard the word syndication mentioned a lot and since the financial crisis there's certainly been a much greater need for that. The question is, what are the challenges in building those syndicates and what obstacles are you facing in trying to build the right type of syndicates?

Nigel Pitchford: The biggest challenge in syndicate building is always alignment and the fact that there's actually quite a lot of capital but it's concentrated in relatively few hands. If you can actually start to access one of those pockets of capital the likelihood is that you'll most likely be able to access a number of other pockets of capital in terms of pulling together a syndicate. If you're not able to access one of those pockets of capital it just becomes very difficult. There is certainly a sense that investors will pull together in order to give a smaller number of companies the maximum opportunity for them to deliver rather than spread their capital very thinly.

B&M: Do you agree that alignment seems to be the key?

Jeanne Bolger: What is important for me is know where we're aligned but also know where we're not aligned. I can handle that. If I know that a syndicate partner may desire an earlier exit, for example, we can factor that in. We plan to align to the extent that's possible so that conditions are right. We keep going but we can tolerate an earlier exit and deal with that as a strategic investor.

Syndication is important. Relating back to that same PWC data, it suggests that in Europe $2 is raised by venture capital to every $1 raised by IPO. There is money there and that's really the best growth opportunity for these early stage companies - to keep going as long as they can with venture dollars.

B&M: One of the other challenges that the industry faces is attrition. A number of people accuse VCs and companies of not killing projects early enough. Would you agree with that and if that's the case how is the problem of attrition tackled?

Nigel Pitchford: Attrition is a bit of a thorny subject

both for pharma and VC because pharma doesn't kill things early enough and venture doesn't kill things early enough either.

The structure of the financing base now, with more corporate VCs and a growing number of evergreens I think does counter it. We could choose to fund things much further but we are being forced to have tremendous discipline to think about how we go forward.

Hakan Goker: Attrition is a word that is more easily uttered in retrospect! However, it does need quite a lot of discipline especially in portfolio management. You can have a snapshot of your portfolio right in front of you with a team that is not shy of criticising each other's investments.

Perhaps it should be the same in pharma where the therapeutic area heads can get to it and really try to get everyone to justify why that thing is going to need such and such amount of funds and what the return of that drug will be.

B&M: Exits are now looking like licensing deals, with upfront payments and earn out payments. What problems does this create for investors, management and founders? How are VCs managing the tensions in their exit strategies?

Nigel Pitchford: Exits are increasingly not clean, there are more and more earn outs with milestones and all the bigger payments that come later down the string. We semi-insulate against it because we can afford to keep those interests moving for a while but it does create difficulties for those that are more time limited.

"Exits are increasingly not clean, there are more and more earn outs with milestones and all the bigger payments that come later down the string."

It also creates difficulties where businesses are funded with liquidation preference stacks.
Sometimes the first dollop of cash in the earn out only just about pays out the liquidation preference stack. Whether that means the management get nothing or the management should share in the whole value of the deal assuming that it pays out. That can go either way and that creates some really big rucks as well amongst VCs and between the management team. The more those back ended deals fail to pay out the more likely people are going to focus on the upfront cash as being the only cash that this deal might return. Investors will take their money out first and management can wait and that does become a problem.

Hakan Goker: Especially if that management is going to continue partially developing that product it becomes a contentious issue. if you look at a couple of the select deals that have been done by pharma, they also understand that so if you look at the up fronts, pharma seems to be not so stingy any longer. They do understand the difficulties in how to balance investor interest versus management interest and they probably need the management a lot more than they need VCs around the table. If you look at the up fronts they have given to some of the projects or companies in recent deals that does cover the liquidation stack and also benefits management to a reasonable level where it incentivises them to continue working with the pharma on those products to reach the milestones that will bring the bio dollars that are attached to that deal.

That of course keeps the venture happy too. They haven't just brought in money; they have brought in value that is not just reflected in the cash they are putting in, and of course you want to be paid back for that value that you have added. The interaction between pharma, the buyer and the seller is getting better and better even in these deals.

My view is that we'll see more of those at a more balanced level than we did 5 years ago.
Nigel Pitchford: There's an upside to having more pharma, corporate VC activity, they have very deep pockets and they are interested in a wide range of technologies. The downside is they get to learn about what VCs are interested in getting as a return from the inside and so when it comes to those kinds of deals they know within the syndicate for instance that a 2x up front might just be enough to get this done and then will put everything else into the earn out.

Jeanne Bolger: If the deal is competitive it's a good day for everybody, that's what the market dictates somewhat. It may also be true that in some of the historical term sheets there was a very significant liquidation preference stacking in favour of the investors. I think now maybe management are more educated, serial entrepreneurs and are more cautious about getting into those structures in the first place.

Question from the floor: What do you look for in business plans? What do you think entrepreneurs and start ups can do to attract the attention of funds like yours?

Hakan Goker: The excitement around how unique is that technology and what it can afford is of course very important but we're all human. When someone comes in front of you that can drag your attention for 1 minute in telling that story, if your mind clicks you're more likely to really keep thinking about what that opportunity can do.

Jeanne Bolger: It's got to stand out like you say. We're all seeing hundreds of opportunities every year

and some of them are large business plans, some of them are 1 page teasers, some of them are 5 to 20 slides and you're best chance is to get in front of the investor and you're not always going to be able to do that. It's got to jump out.

Nigel Pitchford: In the last 12 months Innovations invested in 6 new companies. Investors in our group have some time for looking at opportunities but the ones that stand out be it the quality of the science or the quality of the people that are in front of you are going to be the ones that we spend more time on.

B&M: One last question to each of you, what can entrepreneurs and companies expect to see from your organisations going forward?

Jeanne Bolger: Hopefully very consistent with what we're doing now, more of the same in terms of looking for early stage innovation. For JJDC specifically that does mean in Europe we're more present and we are looking for earlier stage investing than we typically got involved in in the pharmaceutical sector so I would hope that I'll be seen around looking at start up opportunities with very innovative science in areas that are of strategic interest to us.

Hakan Goker: Not very much of a difference from what we're doing now but we do hope to have more money to invest so we can help create more companies that will have products to move forward. For the entrepreneurs we hope the mother company joins the race to have a transaction with those alongside the other potentially interested parties so that we can show that we are a strategic arm of Merck Sorono. As you know there are very few CVC backed companies that have been bought by their mother companies.

Nigel Pitchford: Our strategy will continue. Our overall mission is to be creating the next generation of billion dollar companies and we believe that capital and some of the abilities we have will enable that to make it happen. It may not be pharma, it may be in other areas but that's the ambition we have and so you'll see us increasingly scale investment into some of those businesses to enable them to go that route. In terms of the wide part of the funnel, I'm not sure it will change very much, we'll still look at the same number of opportunities and will probably still do the same seed opportunities. In terms of the further end of the funnel I would expect we are likely to have 5 or 6 companies in which we'll have £20m to £30m invested in each of them over the course of the next 3 or 4 years. ■

Funding Social Innovation; the role of social impact funds

Matthew Mead, Chief Investment Officer, Nesta

Nesta is an innovation charity with a mission to help people and organisations bring great ideas to life. They are dedicated to supporting ideas that can help improve all our lives, with activities ranging from early stage investment to in-depth research and practical programmes.

Biotech and Money managed to grab time with their Chief Investments Officer, Matthew Mead, to discuss the on going development of Nesta as a charitable organisation and more specifically social impact investments in the broader role of funding social innovation.

B&M: Can you briefly give us Nesta's story, about the organisation and the role it's currently playing in the investment eco-system.

Matthew Mead: Nesta was established in 1998 by the Labour Government as the UK's innovation agency and focused on driving innovation within three core areas: science, technology and the arts. Given an endowment from which to operate, we were a public body reporting to the Department for Business, Innovation and Skills.

In 2012, however, we were spun out of Government and became an independent charity. We are very focussed on public and social innovation and consist of a policy and research team, an innovation lab that supports and provides monetary grants for grass roots programmes and an investments team.

I started working at Nesta four years ago. The investment function at that point was in many ways similar to an early stage venture capital operation funding projects and organisations that found securing finance difficult. One of the pitfalls of early stage investment and trying to fill equity gaps is there are sometimes reasons why these gaps exist. We've had successes and failures from which we can learn.

B&M: You're chief investments officer at Nesta, you developed and are also running the social impact fund but you also have management of the overall Nesta trust as well, is that correct?

Matthew Mead: There are broadly three parts to my role. I work with our Finance Director alongside the trustees looking after the £350million endowment that Nesta has, and which funds a large portion of our activities. I also look after the old venture capital portfolio which has got smaller over time as we have exited and sold businesses. Finally, I work with the investments team to grow the social impact investing work that we do through Nesta Impact Investments.

B&M: And in which of those 3 areas do you see yourself adding the greatest value?

Matthew Mead: Having spent 15 years managing early stage venture capital investments for international investor 3i I've spent a lot of time working with industry, constructing investments and managing exits.

These skills are important at Nesta as we manage our venture portfolio and look at building our social impact investment function. The social investment fund is a new activity for us. We look first and foremost at the impact a project or organisation is likely to have on the social outcomes we care about and we develop a plan to build the evidence of impact. The way in which we construct an investment, work with the entrepreneurs and manage those investments through to some form of market exit are very similar to my old roles in venture capital.

B&M: What are the major timelines that you're working towards over the next 12 to 18 months?

Matthew Mead: We've made seven investments from the Nesta Impact Investments fund so far in two years and in the next two there's probably another seven or eight more to be made. It's important that we construct a portfolio of organisations that have impact that we evidence and measure and that are financially robust, innovative and exciting.

The focus outside the current fund, is on fundraising ourselves and building out our funds so that we have more capital we can offer to organisations that are driving social impact and help scale those that are successful. Over the next 12-18 months our work is a combination of making sure we sensibly construct an investment portfolio, and thinking about how we bring more funds into the market over the next 5, 7 or 10 years.

B&M: Is it too early to note some of Nesta Impact Investments' achievements to date? If you could line up a couple of successes what are you most proud of over the last 2½ years?

"Over the next 12-18 months our work is a combination of making sure we sensibly construct an investment portfolio, and thinking about how we bring more funds into the market over the next 5, 7 or 10 years."

Matthew Mead: It is early days. All of the investments we have made have been in relatively early stage organisations, working across three areas: older people, young people and education and communities. For example, we invested in an organisation called Oomph! which runs exercise classes in care homes. It was founded by a fitness instructor-turned-entrepreneur who started knocking on care home doors saying he could run exercise classes that were relevant to the residents and help them both in terms of their quality of life and also their health and fitness. He's grown that organisation and it is now beginning to partner with some of the major care home groups in the UK. Technology underpins but doesn't drive that organisation but it's a really interesting model of how intervention can positively impact the ageing population.

We're not healthcare investors so we wouldn't invest in a biotech company or a med tech company through Impact Investments because there are other investors who are much better at doing that than we would be. We're looking at the broader issues; as the population ages how do they enjoy a better quality of life and stay healthier for longer.

B&M: Just moving away from the impact fund, we talked about your other hat which was the management of the Nesta Trust and the other parts of the investment portfolio. Looking at the investment landscape, what is your own personal view of early stage investment markets at the moment?

Matthew Mead: It feels healthier than it has been for a long time. There are a number of market commentators that would tell you the amount being invested into venture capital deals in Europe is stronger this year than it has been for the last couple of years at all stages of investment – early and late

stage. The amount of money being raised by venture fund managers is also increasing and the returns that funds are making is improving year on year.The fact that there are some successful exits, both in terms of listings but also in terms of mergers and acquisitions, is really important it helps maintain the virtuous circle of entrepreneurs working in multiple ventures, having exist and coming back and helping new companies grow.

There's also a lot more early stage support for accelerator programmes, incubator programmes and mentoring programmes that are giving early stage entrepreneurs opportunities. This is an area where, historically, Nesta has always been active and operators like Seedcamp, Techstars and Bethnal Green Ventures are really helping the early stage ecosystem.

If you look more closely at the venture market, however, there's still a very strong bias towards internet and digital media technology. So, it's still tough for early stage organisations that might have a stronger science bias to raise the capital that they need because there are fewer funders in this area. The overall picture is pretty positive, though.

B&M: I guess that comes down to the binary outcome nature of R&D therapeutics and that is either a win or a fail?

Matthew Mead: I think it's a combination of the fact that you can have a binary outcome and quite often there's a lot of capital required to get to that outcome. Therefore, syndication and risk sharing is where venture investors and corporate ventures can play a part. It's very important because there are very few investors that have the fund capacity to finance something through from start up stage all the way to clinical trials and an exit.

B&M: You mentioned the word supportive. Outside of the obvious capital investment side of things, where do you feel Nesta provides the greatest value to its investments at the moment?
Matthew Mead: If you think about Nesta Impact Investments, we work very closely with the

entrepreneurs because we want to build a plan with them to show the evidence around the impact that their intervention has. So one of the things we do whenever we invest in an organisation is build an impact plan which is a bit like a business plan. It has a two or three year time scale and looks at how we, over time, build the base of evidence that this product or service has the intended impact. We work closely with the organisations on that impact evaluation plan. We also get involved at a board level as other investors would and help bring the benefit of our board experience to the entrepreneurs and their organisation.

Nesta has strong networks in government and local authorities and we try and use those networks to support and benefit our portfolio as well. We do the same in our old venture portfolio; we're actively engaged with all of the investors that we have and where we can we're trying to work with them to help them grow their businesses.

B&M: To close, what are the concerns that are keeping you awake at night?

Matthew Mead: Thankfully there's nothing that really keeps me awake at night. Early stage investing has its ups and downs and any portfolio has investments in organisations that are doing well and some that are struggling. An investor's job is to remain balanced and pragmatic, help entrepreneurs and teams make intelligent choices and try to smooth out some of those ups and downs. I have worked on successful exits and with businesses that have failed and although this does bring highs and lows, experience helps you sleep at night!. ■

Longitude Prize 2014 is a challenge with a £10 million prize fund to help solve one of the greatest issues of our time. It is being run and developed by Nesta, with Innovate UK as launch funding partner.

How can we prevent the rise of resistance to antibiotics? was chosen as the winning challenge.

The challenge opens for submissions in November. For more details visit www.longitudeprize.org

Feature: 16 challenges that keep life science and healthcare VCs awake at night

1 Finding novel science with substantial market potential. It has to be truly innovative and novel. It needs to meet an unmet medical need and has to have the potential to be truly disruptive. Back this up with a substantial market opportunity and you'll have a VC dancing with excitement. The search for this kind of technology is what drives VCs.

2 Finding rock solid science and great data. Not only does the technology have to be novel with market potential, but VC's obsess about the quality of the science and the data itself. It all starts with the science behind what they are backing.

As Allan Marchington of the VC Apposite Capital says: 'the science has got to drive a lot of the investment...we want to understand the science first and foremost'

VCs recognise that while people are key to great companies, they're not absolutely required in the early stage investments whereas great science is, as it will attract great people.

3 People. Ask any VC what makes for a successful venture and top of the list will be the people behind the project. No small wonder then that building strong management teams is one of things that keeps VCs awake at night.

David Grainger of Index Ventures says this is his biggest challenge, and you'll be hard pressed to find a VC that doesn't agree. Specifically, 'identifying individuals to lead our projects who have a sufficiently broad experience of drug development processes. People with the required "helicopter-view" of the drug development process.'

These kind of people are very thin on the ground because most people got their experience of drug development through large pharma companies and there, with teams of hundreds of people developing a drug, there's often no one individual who is, if you like, the overall pilot. Those individuals who understand the whole process are rare and can be the limiting factor for VC's ability to scale the operations.

4 Intellectual Property. For an asset to be investible, it needs to have watertight IP. No surprise then, that the first item on the agenda in due diligence is ensuring this is there. VC's also worry about the IP strategy that has been put into place, and the kind of advice that is being given around it.

5 A high level of ambition. VC's get out of bed in the morning to create billion dollar businesses. They are not interested or motivated by small incremental differences, so one of things that keeps them awake is pure ambition – and the search to find that level of ambition from founders and start ups.

6 Filling the gap left in R&D. As Global Pharma companies trim down their R&D operations significantly over the next several years there will be a massive opportunity for the smaller biotechs to fill the gap. This could be the biggest opportunity for VCs and they are desperately looking for ways to capitalise on this trend.

As David Grainger puts it: 'there's going to have to be a revolution in R&D strategies and for those of us who operate small, virtual businesses, whose focus is on efficiency, on producing more per dollar rather than simply producing more, then, that revolution represents an enormous opportunity'

7 Public perception of the biotech and pharma industry. One hears enormous cynicism about the drugs industry. People out there generally assume that we're all here just to rip them off, to take as much money as possible out of the system and deliver as little value as possible. This perception takes it toll on VCs as much as any other stakeholder in the industry, and they would love to see more done to tackle this challenge.

8 Finding the killer instinct. One of the differences between successful and unsuccessful VCs is the ability to kill things when they no longer have a sufficient chance of being successful. The biggest killer of efficiency in the large pharmaceutical drug development enterprises, and for healthcare VCs in general, is keeping going with things when somebody somewhere really knows that this is no longer the thing to pursue. We, as human beings, always like to cling on to the remaining possibilities of things working out big. We don't like to crystallise losses. We don't like to admit defeat. VCs struggle with this on a daily basis.

9 Lack of a strong public market in Europe. As Nigel Pitchford, Chief Investment Officer of Imperial Innovations puts it:

'There is a lack of critical mass, both in terms of exciting young companies but also those more established businesses that can anchor the sector. This translates to our public capital markets that lack sufficient mass of interesting companies to invest in or follow, and who subsequently find it hard to consider biotech. If we really are to see the sector build and grow and go from strength to strength, we're going to have to make sure that public market money is also available for these businesses, when they need it... We need more analysts, more research, and more specialist funds dedicated to this area, to rebuild the sector and educate the generalists.'

Allan Marchington adds:

'The challenges for me are in order to grow substantially large companies we need a strong public market in this space and unfortunately it isn't as strong as I'd like it to be. We are seeing a few early green shoots of IPOs but we need more generalist investors to come in and actually push the IPO market harder'.

10 Predicting what and where future corporate appetites will be for M&A. More often than not the only exit VCs are ever going to achieve for their company is an M&A. The people who are going to do an M&A are the large or the medium to large corporates. Therefore, in the biotech space it's really about predicting what's going to be interesting to those companies in 5 years' time. That's one of the principle challenges keeping VCs awake.

11 Deciding where the opportunities are that are changing patients' lives, changing clinical outcomes and that will change clinical practice. If you can determine what will be changing patients' lives in 5 years time, you'll know what corporates will be prepared to pay for. For VCs, it's this need to predict the future that occupies them.

12 Reimbursement and Pricing. Is the unmet medical need a significant differentiator enough to drive reimbursement? If we consider targeted therapy pricing: is the high price model here to stay? Reimbursement and pricing is front and centre on the minds of VC's, because ultimately there has to be a market and a buyer for the technologies they are backing, and for it to make economic sense, the price has to be right.

13 Predicting the changes in the NHS and private pay markets. Predicting how services are used can help you predict which devices and which therapeutics are going to become most interesting in an NHS setting. So, keeping up with the on going changes and potential future direction in the NHS and private pay markets is paramount.

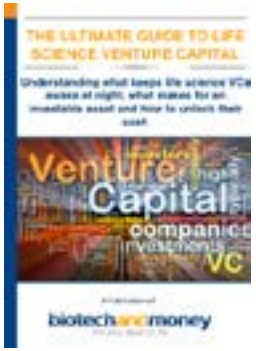
14 How to work more effectively with Tech Transfer Offices. TTO's are often accused of overvaluing IP, being uncommercial, slow and lacking perspective. For a VC, it is imperative to be able to work effectively with them as they are often the gateway to great science. Good TTO's have an understanding of what a VC is looking for in an idea, they package it well and they're pretty open and realistic in what they have. Their IP policy is clear and they give the academics the right advice and guidance in improving the idea they have. Some TTO's do this very well. Unfortunately, however, many do not and VC's challenge is to get the most out of them.

15 Exciting opportunities emerging as a result of the NHS opening up. As Allan Marchington points out: 'There are loads of super smart people who have some great ideas who've never really looked beyond the NHS to get real access to capital to take those ideas from concept to fruition and really change patients' lives. That's the thing that really excites me at the minute, there's a world there that is still mostly untapped.'

16 Keeping the investment on track. In many ways, making the investment is relatively easy. Managing and exiting is the much harder part. Dealing with the ups and downs of any business is a major preoccupation of VCs. ■

To download the complete 'The Ultimate Guide to life science venture capital' from which this article was taken

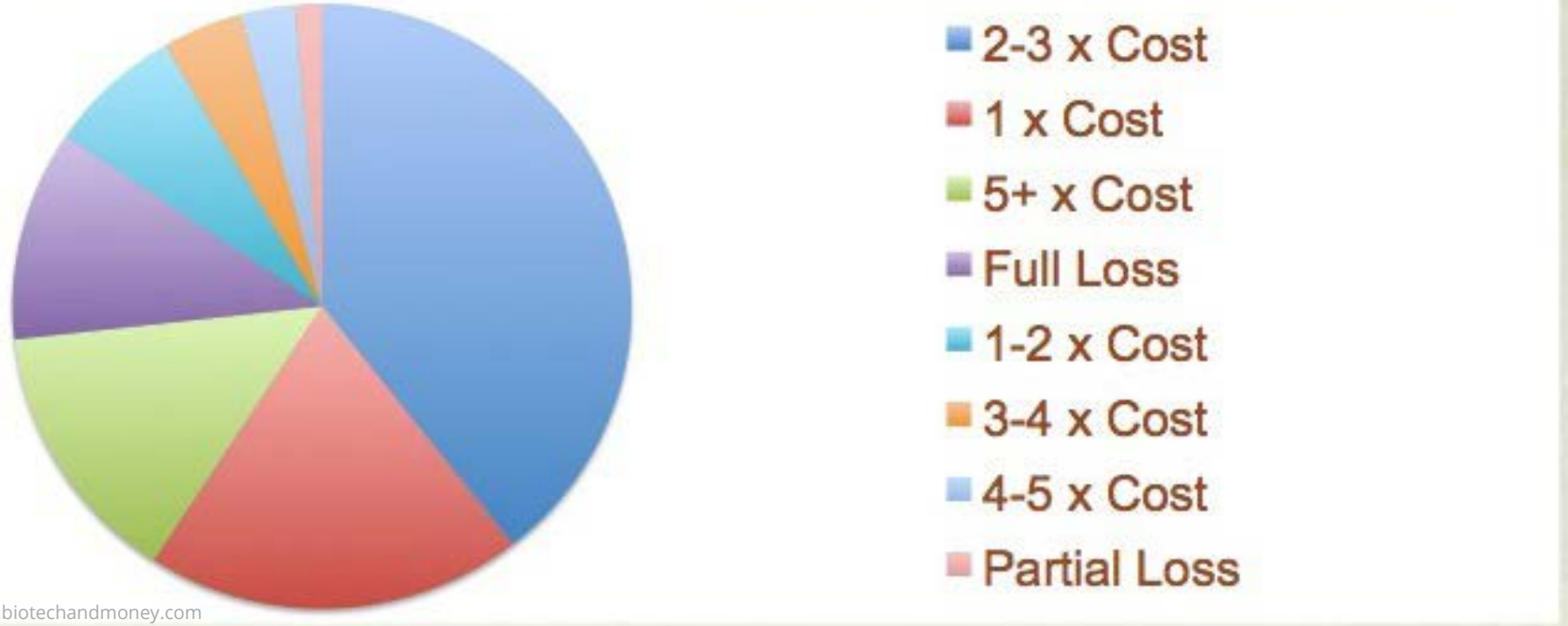
CLICK HERE.



OCT COMMUNITY POLL

The cost of capital for early-stage Biotech

This poll reviews the cash multiples realised by bioscience investors on their most recent investments and over the culmination of the past 12 months. Responses were collated from UK, Europe and North America.



Meet the Advisory Board

David Grainger, Venture Partner, Index Ventures
@sciencescanner

How did you come to be in the biopharma industry?

I wanted to be a biochemist from the age of eleven! I saw an Open University program on how the mitochondrion releases energy from glucose, and was mesmerised. From that moment on, I never even considered any other career. Then, in my first year as an undergraduate at Magdalene College, Cambridge, studying Natural Sciences, my father died suddenly from a heart attack – which had a profound effect on my career. It was no longer enough to be a biochemist – I wanted to be a biochemist contributing to drug discovery in the pharmaceutical industry.

What is your biggest work-related achievement to date?

Bringing the first somatotaxin – a new class of anti-inflammatory drugs discovered in my academic laboratory – from the bench to Phase 2 clinical trials in under 5 years with around £10million. Drug development has become bloated and inefficient, so executing a high quality development plan quickly and at relatively low cost was an important demonstration of what can be achieved in a lean, virtual company environment.

What activity do you spend most of your working day doing?

It depends on the day! As a Venture Partner at Index Ventures I have a dual existence, as an investor but also as a drug developer. Most of my time is spent guiding the discovery and development activities in the early stage Index portfolio companies, reflecting the Index strategy of not just providing capital but also the expertise to move assets forward efficiently.

Where does your current role add the greatest level of benefit?

Investors play a critical role in the industry, allocating capital. If we chose the wrong programs to invest in, then those resources are wasted. By making the right decisions, and equally importantly by then guiding those projects we do invest in to a successful conclusion, we can improve the efficiency of drug R&D – something that's badly needed to keep a lid on spiralling healthcare costs.

Where do you see the greatest opportunity in the biotechnology / biopharma market?

The industry is about to undergo a major transition. For the last 50 years, society has kept paying whatever is demanded for innovative new medicines. This is about to change – governments and patients are lining up to criticise the industry for charging too much for drugs like Solvadi™, Gilead's new HCV 'wonder drug', as well as for rare disease drugs. High prices sustain inefficient R&D strategies in large pharma companies, but price pressures will eventually translate into a need to be more productive. To do more with less. And if the large companies don't change quickly enough, activist investors like Bill Ackman will step in and shutter inefficient R&D operations to improve shareholder returns.

When that happens, it will fall increasingly to the new breed of efficient, asset-centric biotech companies, which often operate in virtual mode using specialist out-sourced drug development service providers to deliver innovation at a much lower cost. For those of us investing in, and working in, early stage biotech companies the future looks very bright indeed.

Where do you see the greatest challenges?

The lack of individuals who understand the drug development process from end to end. By far the majority of experienced drug developers gained that experience in large companies, where individuals specialise in particular parts of the process. But efficient drug development paradigms need people with a sufficient overview of the whole process to act as skilled pilots. Its supply of such individuals (rather than lack of capital or assets worth investing in) that limits the growth of the virtual biotech sector.

What is the wisest piece of advice you have received from a mentor?

I'd have to credit that to Professor Jim Metcalfe, who together with Professor Peter Weissberg, was my PhD supervisor (although he in turn was given the same advice by his mentor, and one of the father's of modern biochemistry, Arthur Kornberg, the discoverer of DNA polymerase): "Look where the light is brightest". In other words, there is no point looking for solutions to problems in difficult places – if you cant find a solution in the easy places, find an easier problem to solve!

Knowing what you know now, what advice would you pass on to a younger version of yourself just starting out in the industry?

Get as wide experience as you can possibly muster. In today's world, with the internet and social networks), accessing deep, specialist knowledge (or the people with it) is easy. You have to know enough about each area to ask the right questions, nothing more. I probably spent too long in academia, gaining little more than a sense of frustration at how broken our scientific publishing and grant funding systems have become.

If you could have invented or discovered one thing in this industry, what would you like that to have been?

At the end of my career, Id like to look back and see ichorcumab saving millions of lives. This is an anticoagulant antibody that separates antithrombotic efficacy from increased risk of bleeding, and it has the potential to be the most important clinical advance of the 21st Century. This antibody was discovered fortuitously in a patient who presented at Addenbrooke's Hospital in Cambridge, back in 2008 – the patient was fully anticoagulated but did not bleed according to Dr Trevor Baglin and Professor Jim Huntington. So they set about identifying the autoantibody responsible for her phenotype. And that antibody was the basis for the design of ichorcumab – a human monoclonal antibody we are developing at XO1 Ltd. I am both proud and excited to have a hand in its development.

If you could wave a magic wand over the industry, what would you change and why?

Probably public perception of the pharma industry. It saddens me that people I meet take such a dim view of the industry I am actually proud of. When you see how heart disease rates have fallen in the UK since my father died in 1987 (its about a 50% reduction in premature heart attacks since then), and how many people are surviving cancer that would have been a death sentence a decade ago, it is hard to hear people criticising the profit-motive, and taking such a cynical view of the drugs industry. Almost everyone I know in the industry is doing it because they want to improve human health.

What are three things still left on your bucket list?

I can't name three! I like to focus on one thing at a time and the move on to realising the next dream. For now, its seeing a successful launch for a new charity Im involved with, called #LetsBeatSepsis (and you can find out more at www.letsbeatsepsis.org). After my Mum passed away in 2011 from sepsis, I have become obsessed with finding ways to reduce the impact of this disease which kills more than 37,000 people a year in the UK alone (that's more than lung cancer, or breast cancer and colon cancer combined). And we have a plan! If we can raise a million pounds, we can run some trials of a whole new approach to preventing sepsis by treating it before the disease even manifests itself It's a big challenge, but I like big challenges!

Which three industry pioneers (dead or alive) would you like to have over for dinner?

First on the guest-list would be Paul Janssen, the eponymous founder of Janssen Pharmaceutica (now part of Johnson & Johnson). I loved his mantra "You take the risk, I'll take the blame" to get his scientists to be innovative. And I'd probably invite his modern-day successor, Paul Stoffels, the current CSO at Johnson & Johnson. No-one who has heard Paul speak could fail to be moved by his commitment to improving health worldwide (even the most cynical pharma-kicking journalist), from his days as a practicing physician in Africa, through the discovery of HIV medicines at Tibotec, right up to the present day when he has moulded the Janssen R&D organisation into one of the most admired in the industry. And best of all, he can play the piano (very well indeed) after dinner!

The last seat would have to be reserved for Prussian pathologist, Rudolf Virchow. Well known for his introduction of the cellular theory of disease, as well as "Virchow's Triad" to describe the pathogenesis of cardiovascular disease. But for me, he was a scientist generations ahead of his time. ■

Meet the Members

Jane Dancer, Chief Business Officer, F-star

How did you come to be in the biopharma industry?

I trained as a plant scientist and originally worked in agrochemicals. The '90's were difficult for agchem and so, like many people, I moved to biopharma.

What is your biggest work-related achievement to date?

Probably, the deal we just announced with Bristol -Myers Squibb providing them with an exclusive option to acquire F-star Alpha Ltd. and its novel HER2-targeted therapy.

What activity do you spend most of your working day doing?

It depends, no two days are the same but I spend a lot of time communicating with potential partners by phone, e-mail and face-to-face.

Where does your current role add the greatest level of benefit?

To patients, I hope. Through establishing pharma partnerships, my role provides the resources and capabilities needed to unlock the potential of F-star's significant scientific achievements.

Where do you see the greatest opportunity in the biotechnology / biopharma market?

Immuno-oncology is already very exciting and combinations of drugs are showing great promise. Combining two activities in a single drug, such as a bispecific antibody, represents the next obvious step in this evolution.

Where do you see the greatest challenges?

Public perception of pharma is a challenge, from my experience in agchem I appreciate how important it is to communicate with the public about our industry so that people understand our contribution.

What is the wisest piece of advice you have received from a mentor?

Follow your instincts, as a scientist it is easy to over-analyse everything.

Knowing what you know now, what advice would you pass on to a younger version of yourself just starting out in the industry?

I encourage people starting out in business development to get experience in working in both biotech and pharma, I think it's important to have an understanding of what is involved on both sides.

If you could have invented or discovered one thing in this industry, what would you like that to have been?

Living in Cambridge, it would have the be the structure of DNA.

If you could wave a magic wand over the industry, what would you change and why?

More women in senior positions, I think it is generally accepted that it is good to have greater diversity.

Spend time in the lab or in the office?

I used to enjoy lab work, but it's so long since I was in the lab it would have to be the office now.

What's the one interesting fact about you that no one would suspect?

I'm addicted to the Archers.

What are three things still left on your bucket list?

Skiing the Vallée Blanche in Chamonix, visiting friends and family in Australia and Safari in Africa. ■

Meet the Members

Amr Abid, CEO, Regenerys
@amrabid

How did you come to be in the biopharma industry?

Pharmacology brought me in the industry. As a student preparing my Masters and later my PhD in pharmacology, I worked on projects that have been funded by the pharmaceutical industry. I spent 9 years in research in fields of cancer, arthritis and inflammatory diseases.

What is your biggest work-related achievement to date?

I always believed that people are the essence of any great achievement in any business. I am delighted when people I have mentored and coached become successful in their life and carry one the mission of mentoring coaching other people.

What activity do you spend most of your working day doing?

You cannot escape what some people find boring, repetitive and administrative parts of you working day, which need to be done. I spend a fair amount of time listening and talking with my team. One thing I am religious about is taking time to learn from people, experiences and other industries.

Where does your current role add the greatest level of benefit?

Experts will tell you that tomato is a fruit. Wisdom will advise you not to add it to your fruit salad. Bringing wisdom to a business and people, connecting the dots across your business and the industries. Finally, a dream and a vision, focus and execution, these are the greatest benefits I am adding in my current role.

Where do you see the greatest opportunity in the biotechnology / biopharma market?

The world is getting smaller because of the connectivity we have these days. Asia, Africa and South America wealth and economies are growing much faster than any western economies. The western populations are aging. Within these new parameters, the greatest opportunities will be in diagnostics, regenerative medicine and infectious problems.

Where do you see the greatest challenges?

The greatest challenges I see for our future will be addressing the needs and accessing the emerging economies. Over 60% of the global population live in Asia, Africa and South America.

What is the wisest piece of advice you have received from a mentor?

Leadership is about communication and enablement. It is an equation that has always worked for me for internal or external matters to drive success.

If you could wave a magic wand over the industry, what would you change and why?

Bring down the vertical walls that compartmentalise people in the industry by function and expertise or across the industries. The challenges of the 21st century will only be resolved by collaborative approach. Wisdom combined with expertise, biologist working with an engineer, astronomer, geologist, etc.

Spend time in the lab or in the office?

In fact both. I like to keep in touch with what is going on in the lab to understand the challenges from the scientists. You cannot escape the office.

Which three industry pioneers (dead or alive) would you like to have over for dinner?

3 people had a profound on the society we live in. Alexander Graham Bell, he made the world smaller with the telephone and made communication the heart of our civilisation. Thomas Edison like any other electrical engineer and inventor was not afraid to think big and large when it comes to industrialisation. Finally, Steve Jobs is an inspiration for anyone who want to challenge the status quo. ■

Meet the Members

Silvia Hill, Chief FInancial Officer, GlobalAcorn
@silviahill16

How did you come to be in the biopharma industry?

I always had the desire to become involved in the pharma industry, as I wanted to make a difference in other people's lives.

At the Christmas dinner of my yoga teacher I sat next to one of the co-founders of GlobalAcorn (www.globalacorn.com). I was fascinated by their technology and I straight away knew that GlobalAcorn was a company I wanted to become more involved with. I did my elevator pitch right then and there and thus it all started. After a couple of months working with the team and board on strategy and financial planning, they offered me the position of Chief Financial Officer, which I happily accepted. I very much believe in our cancer nanomedicine technology and the impact we can make in changing the standard of care of cancer therapy. This is the reason why I also invested in the company. This comes from an equity fund management professional who rarely invested in the biotech industry in the past.

What is your biggest work-related achievement to date?

Getting involved in GlobalAcorn is one of my biggest achievements. I have been able to attract some small investors (total just above £100,000) to help us get all our IP under full control and get us in a position to start our funding round, which we are currently in the middle of. As a team we have made some very good first contacts with some very interesting VCs. I draw a lot of comfort from the responses we get when investors are impressed with our lab results.

What activity do you spend most of your working day doing?

No days are the same as part of a start-up. As a management team we communicate daily to make sure all our targets are on course. We are also spending a significant amount of time looking at different sources of funding (inc. non-dilutive) from potential investors, and this includes meetings with follow-on dialogues.

As the Chief Financial Officer of GlobalAcorn, I am in charge of setting budgets for our two lead cancer nanomedicine projects and our commercial strategy around them. Running the accounts and keeping costs under control is a smaller part of my working day but that will change once we have our Series A funding.

Where does your current role add the greatest level of benefit?

I have spent over 10 years investing in European Smaller Companies for Institutional and Retail investors and thus I have a good idea what would I want to see as from an investment. As a team we now think as shareholders/ investors, ie maximizing returns but at the same time minimizing risk. Our two lead products will go into clinical Phase 1 in very short period of time and one has the potential for a significant licensing deal after only 17 months and thus minimizing the dilution for early investors. With that milestone, we will be well on our way also to proof we have a true platform technology for nanoparticles used in cancer therapy.

Where do you see the greatest opportunity in the biotechnology / biopharma market?

I may be slightly biased but I very much believe that the next opportunity is in the cancer nanomedicine market. Considering the amount of investment, I am surprised at the low efficacy of current cancer technologies. I thus don't believe the industry can come up with new and more effective chemotherapy drugs in a short time frame. Another way has to be found to improve cancer therapy and make it truly personalized.

I believe we at GlobalAcorn have developed next generation nanoparticle technology. We are developing innovative pharmaceutical products that are expected to make significant contributions towards the evolving markets in companion diagnostics, image-guided therapies, stratified and personalized medicine. Our lipid-based nanoparticle technologies are designed

with specific physical and chemical characteristics enabling high levels of control over targeting and release of pharmaceutical agents to disease target sites. This should lead to maximal efficacy with minimum unwanted side effects .

Where do you see the greatest challenges?

Finding the right sources of funding at different stages of development is a key challenge for the industry. The industry in the UK as a whole is not as well developed as the US even with all the high quality academic research being done in the here.

2014 has been one of the best years for raising money for biotech companies (FT: 6th October 2014: UK raised £734mio in funding), with nearly half of the money coming from two IPOs. However the three top biotech clusters in the USA (Boston, San Francisco and San Diego) have together more than five times as many drugs in development than the UK. This is due to the fact that there is not enough true venture funding available here. If we want to commercialize some of these important projects, more money needs to be available for early stage financing.

One needs to remember that phase 1 and 2 clinical trials can cost several tens of millions of pounds alone. In most cases money coming from government grants, angel investors and HNWs is not enough to get them started. Crowd funding platforms and incubators are also not well advanced and in most cases are more focused on progressing research in the lab and/ or universities. We also need to think about better exit strategies for these early stage investors. The IPO market, although more buoyant than in recent past, is still not very developed. There are few dedicated biotech funds (versus the USA). The funding challenges are multi-dimensional. If we want to tackle them, the whole industry needs to be involved.

What is the wisest piece of advice you have received from a mentor?

I have never had a real mentor. But some of the people I very much admire have a very high ethical standards. With that they have been key people of change.

Knowing what you know now, what advice would you pass on to a younger version of yourself just starting out in the industry?

Networking and collaborating with key individuals is very important. Working in a start-up is a very different cultural experience. But one learns good networking skills due to limited resources. People will introduce you to helpful contacts if you ask as a favour, and you must remember to give something back to the people who helped you along the way.

If you could have invented or discovered one thing in this industry, what would you like that to have been?

If I wanted to develop something myself apart from our products at GlobalAcorn, it would have been a pill that can cure cancer. In my family and circle of friends I have had too many people die too young of this dreadful disease.

If you could wave a magic wand over the industry, what would you change and why?

I would reduce the time to market, and I would allow more fast-track registration for life savings drugs. In the last couple of months I had several family members diagnosed with different cancers. All of them asked me when they can get access to our treatments and I had to tell them that they had to wait at least a year from the time we get funding. That was very crushing as I believe we can help.

What's the one interesting fact about you that no one would suspect?

I am a regular meditator. Helps me to keep my head clear under stressful situations. Also I am not from the UK. Meet me and guess where I am from!

At which store would you like to max-out your credit card?

Amazon! I buy a lot of things there from books, health food or to just whatever I need to stay happy.

What are three things still left on your bucket list?

Professionally, my priority is for GlobalAcorn to get the right investor so we can progress our two lead products. Personally: I am an off-the grid traveller with my husband. We have seen a lot the world already together, but there are still so many places to explore. Our next trip hopefully is back somewhere in Latin America.

Which three industry pioneers (dead or alive) would you like to have over for dinner?

Warren Buffett, Malala Yousafzai, and Jonas Salk. ■

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