

# VALLEY OF DEATH



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**The UK is rightly considered a world leader in life sciences with a research base second to none and a long list of success stories. However, a deteriorating funding environment is threatening to starve small and emerging bioscience companies and constrain growth, particularly through the toughest part of R&D to navigate – the ‘valley of death’. Government should look to diversify funding opportunities and engage the public in supporting UK technology by launching Citizens’ Innovation Funds.**

Around this time last year Amgen, a large multinational biotechnology company, bought Biovex, a Massachusetts-based company researching and developing speciality cancer drugs, in a deal that could eventually be worth \$1bn. It was one of the largest biotech Venture Capital (VC) sales in history.

Why does the story of one large company buying another in the US have relevance to the UK? Because Biovex was originally spun out of University College London and was based in Oxford until 2005. It represents a success of British science but also highlights a persistent issue, long recognised but not yet adequately tackled – namely, the UK’s poor record at translating science research into market-ready products.

Biovex relocated for a number of reasons but the readier access to finance and a more favourable public market

was clearly a factor. It is not an isolated case, with other UK-founded companies moving, often to the US, to access capital.

A key consideration in all such relocation decisions is a company’s ability to raise finance to develop new, innovative healthcare products. Research and development of a new medicine is time-consuming (on average around 10-15 years) and expensive (on average costing around \$1bn), but is a vital endeavour to meet areas of unmet medical need.

Access to finance remains the key concern for BioIndustry Association (BIA) members and many warn of further relocations to come if we don’t help small companies bridge the so called ‘valley of death’ – the gap between translating basic research into a viable potential product, or to what’s called ‘proof of concept’. By proof of concept a company has

demonstrated that its research is more than just an idea in a lab and can often then attract further funding, not to mention large companies as partners, to begin the hard work of demonstrating the efficacy and safety of its product for patients.

Some, in fact many, potential new products will fail to get to proof of concept stage; that is the nature of experimental medical research. This is a healthy thing because it means that those innovative products that do successfully vault the many hurdles and make it to patients have been thoroughly and exhaustively tested for safety and efficacy. There comes a tipping point, however, where sound research prospects are being left the wrong side of this valley because a company simply cannot afford to explore it further. When research projects are being abandoned due to financial considerations, not the strength of the science, then restorative action becomes justified.

To remain competitive, therefore, the UK must tackle this funding gap or risk losing the continued financial benefits of a thriving bioscience community. While much good work exists and the UK remains amongst the leaders in the

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sector, it is a great shame that we do not fully capitalise on the world-leading science base, which really is second to none, and other assets we can boast. The valley of death is now the subject of a House of Commons Science and Technology committee inquiry which comes at an opportune moment.

Bridging the gap is more difficult than ever, in part because the traditional funding model for small and emerging bioscience companies, of the type the BIA represents, has been under increasing strain over recent years. At the risk of over-simplifying, traditionally a company, perhaps recently spun-out from a university around a promising bit of research, would seek angel and seed funding to get off the ground with more significant VC funds required to reach the clinical trial stage. Investors set the company certain targets, or 'milestones', to reach along the clinical development pathway whereby additional funding would be provided.

In the past, at this stage, a bioscience company would often make an Initial Public Offering (IPO) and list on the market enabling it to source significant public funding to develop its product further (often with many more now on the way as well). For investors, this IPO was the stage by which they could expect a return on their investment, which, in all likelihood, would then be reinvested in the next new company with promising research starting on its journey.

It is therefore deeply worrying that over the past two years there have been no bioscience company IPOs in the UK, which has had a knock-on effect on those VCs willing to invest in the sector. Many VCs look at a bioscience company in 2012, without realistic IPO

opportunities in the UK, and shy away from investing their money for the length of time it takes to develop a new medicine.

Equity is still available but is increasingly being channelled into a smaller pool of companies seen as safe bets or those whose products are nearer to market and the perceived risk is lower. Numerous highly innovative companies are struggling to continue their development in the UK.

It is true that the medical research environment is changing for small and large companies alike. Pharmaceutical companies themselves are directly acquiring more bioscience companies to stock their own development pipelines, for example. The industry is responding in other ways also. There is greater collaboration and partnering across the board to de-risk earlier stage research. Large companies are investing into promising small companies directly through Corporate Venture Capital arms or sharing this investment with established VCs. It is increasingly recognised that different players in the development chain – academics, investors, small and large companies – bring different and complementary expertise to the table.

Greater collaboration is welcome and will, in all probability, continue to be the direction of travel for the sector. But all these new models of working are not, on their own, enough to shallow the valley satisfactorily. Without VC money being recycled into the sector, companies will continue to struggle. BIA members tell us that by necessity they are spending more of their time on identifying funding opportunities, almost to the detriment of the science itself. Promising research

is being jettisoned as investors urge a narrow focus. Bioscience companies are renowned as lean and effective machines that can operate on a shoestring – but even this tradition can only be stretched so far.

The current Government recognises, as did its predecessor, the competitive advantage the UK holds in life sciences, and as such the recent Strategy for UK Life Sciences is warmly welcomed, containing as it does a package of actions to improve the attractiveness of the UK. Specific new sources of funding, such as the BioMedical Catalyst fund, are particularly important and are aimed at that tough and highly risky point of R&D – the valley of death. Taken alongside other initiatives such as the Patent Box, it is clear we are moving in the right direction, although the impact of these will only be felt in the medium to long term.

However, the government has other levers available to it to create the optimum environment for private investment into highly innovative UK technology companies. Alongside traditional fiscal incentives for high-net-worth individuals, the BIA is urging Government to consider policies that will diversify the sources of available funding. One such policy would be the introduction of Citizens' Innovation Funds (CIF).

The CIF would be based on the French FCPI funds, which have been in existence for around 10 years, raising almost €6bn and investing in over 1,000 high tech companies. The concept is very simple – provide a tax incentive of up to £15,000 for mid-net-worth individuals through a simple 'over-the-counter' retail product sold in high street banks, the Post Office, and others. The money is then pooled together into VC

funds and invested directly into eligible innovative high-growth companies in all technologies, not just bioscience. Companies must be performing R&D in the UK to benefit from the investment, and this could be gauged simply by ascertaining whether they are eligible to claim an R&D Tax Credit, for example.

The CIF has a number of attractive qualities. Firstly, it relies not on public money but merely creates the space to encourage private investment. It opens up a new source of funding for the UK's innovative companies, thus diversifying the funding base and providing a boost to growth. It also engages the British public in UK R&D, providing the connection between investment, research and medical advancement, in the case of bioscience for example. Opening up such investment opportunities to the public without the need to study the markets daily debunks the myth that direct funding of companies is something that 'someone else' does.

The CIF is not a panacea: it will not solve the funding gap on its own and should be considered in conjunction with other fiscal and growth supporting policies. However, the BIA believes that enacting a CIF would be of benefit to innovative UK companies and, in our own space, provide bioscience companies with a better chance of attracting finance to bridge the valley of death and capitalise on the world-leading science and assets we possess. More medicines for patients in the UK and worldwide could be developed here from lab bench to market, and perhaps then the next Biovex will be a UK story from start to finish.

