

# **UK healthcare biotechnology: a progress report**

**Presented to the BioIndustry Association by Critical I Limited  
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## Executive summary

The objective of this report is to provide the BIA with a progress report on the UK healthcare biotechnology sector with specific reference to the funding environment. The report analyses company performances in the calendar year 2004 and compares that performance with metrics for 2003 (and 2002 and 2001 where appropriate) calculated using the same methodology. Accompanying data are available in a statistical report for the DTI available at: <http://www.dti.gov.uk/files/file31856.pdf>

The current report provides both a commentary on the 2004 figures and also sets this in the context of the changing picture over 2005-2006.

### The UK in summary

The UK sector has been caught within a wave of global restructuring since the post-genomics boom of 2000 and 2001. The wave emanated from the US, passed through the UK in 2003/2004, and subsequently swept into the rest of Europe.

The scale of restructuring within in the UK has, perhaps, been exacerbated by the fact that investment in UK companies during the boom years of 2000 and 2001, especially from the public finance markets, was very high relative to that in the rest of Europe. This raised expectations among public investors, expectations that were not realised as a consequence of a series of mergers and acquisitions among the UK's leading players, which substantially revalued the companies' assets. In addition, a number of firms formed in the exuberant boom years closed within one or two years of foundation.

One of the consequences of this revaluation has been that UK firms – both public and private – have found it increasingly difficult to raise additional development capital over the period 2002-2005. The confidence of the public investment market in the biotechnology sector, in particular, has been badly hit by the relatively poor performance of companies that received significant amount of public investment in the boom years. Indices tracking the UK biotech market are down 50% from 2000 and any recent recovery has been from this lower baseline. Nevertheless, it is encouraging to note that the techMARK mediscience index has outperformed the FTSE All Share by 10% from January 2004 to June 2006.

The UK's share of capital raised in Europe fell from around 60% in 2001 to about 30% in 2005. The Alternative Investment Market has helped UK firms raise money during these difficult times, sometimes as a source of money beyond venture capital, and apparently sometimes as an alternative to venture capital.

Although the UK biotech now attracts a lower proportion of European finance than it did in 2000/2001, the UK finance markets appear to be significantly more mature than those elsewhere in Europe, but less so than those in the US. Thus in the UK, capital is available in a variety of forms – seed, venture capital, institutional investment, public markets – and not only to young firms. In non-UK Europe, most of the capital is venture capital and, generally speaking, it appears to be only available to firms older than two years and younger than eight years.

Financing and the growth of biotech firms are clearly linked. In this context, it becomes important to be able to identify any gaps in external financing that might represent bottlenecks for the development of the UK sector. Our analysis indicates that although the density of financing for biotechnology in the UK was higher in 2001 than in 2004/5, there is no convincing evidence of specific financing gaps within the spectrum of finance. Investors in UK firms appear to have become selective in their investment choices, but more generous to individual companies once an investment is made.

The UK sector in 2004, as a consequence, was more mature than it was in 2001: the number of newly-founded companies was lower and the proportion of older firms was significantly higher. Furthermore, a closer examination of the use of capital raised by UK firms shows that companies are learning the art of strategic asset acquisition. Two main strategic drivers have emerged for M&A activity in the UK: the expansion of a technology or product base, and the building of sales and marketing infrastructure. In this way, UK firms are not only building technology-based proto-companies, but also building up assets that, at the very least, give them greater bargaining power with potential collaborators or acquirers.

### 2004 in context

Some confidence in public biotechnology stocks does now appear to have returned to the UK in 2004-2006, with 23 UK companies listing on AIM or the London Stock Exchange during that period (see Table 1). Between them those companies raised around €335 million through IPOs. The maturity of the UK markets is shown by the fact that although the UK had only 26% of the European IPO market in 2005, it garnered 48% of the money raised through institutional investments from private equity firms in public companies (instruments generally known as PIPEs) and other placements, or secondary public stocks offerings.

<b>Table 1: Confidence returning to the UK stock market?</b>			
During the 2004-2006 period, over 20 UK companies have listed on LSE or AIM. Many of the companies have been very young, suggesting that, for some companies, the public markets are providing an alternative to venture capital rather than an exit for venture capitalists or a finance escalator for firms that have already been VC-funded.			
Company	Year of IPO	Amount raised (€ million)	Year founded
Ark Therapeutics	2004	77	1997
ProStrakan	2005	58	1995
Ardana	2005	30	2000
Vectura Group	2004	27	1997
Allergy Therapeutics	2004	21	1998
Proximagen Neuroscience	2005	21	2003
Intercytex	2006	21	1999
Vastox	2004	19.9	2003
Plethora Solutions	2005	14.5	1999
Synaigen	2004	13.3	2003
Phoqus	2005	13	1998
Abcam	2005	13	1998
ReNeuron	2005	13	1997
Oxonica	2005	11	1999
Stem Cell Sciences	2005	8	2000
Evolutec Group	2004	7.8	1998
Syntopix	2006	6	2003
Phynova	2006	5.5	2002
Lipoxen	2006	5	1997
NextGen Group	2005	3	2000
Sareum Holdings	2004	2.7	2003
Angel Biotechnology	2005	2	2001
Physiomics	2004	1.1	2001

During the times of stringency between 2002 and 2004, however, it appears that UK companies have honed the art of business strategy. UK companies no longer command the lion's share of European external investment as they did at the turn of the millennium, but they have proved astute at leveraging the capital that they secure. In 2004, 2005, and 2006, companies that have

been financed have been quick to accrete value by securing research and commercial assets. For some of the more mature companies in the sector, the UK financing environment appears to be constraining their ambitions. With UK public markets opening too late, or being ungenerous when they have opened, a number of companies have “Americanised” in order to access US finance streams.

Among UK private firms, for instance, Cyclacel’s and Solexa’s reverse mergers into the US public firms Xcyte Therapies and Lynx, respectively, allowed them virtually immediate access to the US public markets. Cyclacel raised around raised €45 million in a US placement while Solexa raised over €90 million in two placements. Companies such as Lorantis and Microscience, which were both acquired by US firms, and BioVex, which is moving its HQ to the United States, will have better access to US finance. Indeed, in June this year, BioVex filed for a Nasdaq IPO to raise up to \$45 million while Warner Chilcott filed to list on Nasdaq, an offering that may raise over €700 million and value the company above €3 billion. Thus many companies in the UK are creating value, and although that value is not necessarily being recognised within the UK, it can be realised when US investors become involved.

The apparent need for many of the best-funded UK companies to turn to the US is, perhaps, not entirely surprising. Those UK companies with sufficient drive and ambition recognise that the UK and European finance markets in their current state simply cannot provide a level of support that matches the company’s needs. While initial offerings on Europe’s public finance markets have been an option during the past few years, very few European public companies have been able to return to those markets, even when the performance of their stock price has been good. UK companies do not have the time to wait for those markets to mature. Their only remaining choice is to try to engineer a position in the US market with its greater access to capital. For some companies, there is the additional incentive of being close to product markets and to a strong technology base.

### Companies covered in this report

We have identified 350 UK companies in the healthcare and healthcare-related service sectors in 2004, whose primary commercial activity fell within the definition of biotechnology used in previous reports (see Appendix 2 Methodology). For this report, we have not considered the Agbio, Environmental, and Industrial companies in biotechnology, nor those service companies that work only in those sectors. However, we estimate that the healthcare and healthcare related services sectors account for over 75% of the companies, nearly 90% of the employees, 85% of the revenue, nearly 90% of the R&D spending and all of the external investment in the UK’s biotechnology sector (Table 2).

<b>Table 2. Healthcare and non-healthcare biotech sectors in the UK</b>						
<b>Sector</b>	<b># Cos</b>	<b>Employees</b>	<b>Revenues € billion</b>	<b>R&amp;D Spend € billion</b>	<b>R&amp;D Employees</b>	<b>Equity raised € million</b>
<b>Healthcare</b>	234	12,090	3.0	1.3	5520	677
<b>Healthcare service</b>	116	6,790	0.67	0.11	3170	93
<b>Total Healthcare</b>	350	18,880	3.76	1.4	8690	770
<b>Agbio and industrial</b>	57	1,710	0.52	0.049	345	4.7
<b>Environment</b>	45	1,240	0.31	0.062	535	0
<b>Total</b>	457	21,830	4.5	1.52	9570	775

The definition of biotechnology used here specifically excludes some companies that alternative definitions of biotechnology or life sciences often encompass (particularly clinical research organisations, suppliers of biological reagents for research purposes, medical device

companies, and those drug companies which use little biology). Consistent adherence to a transparent definition of the sector is key to any comparison of biotechnology data sets, whether between nations or between different time periods for a single nation or region.

### The 2004 UK picture

In 2004 the UK human healthcare biotechnology sector:

- Comprised 350 companies (down 8% from 383 in 2003);
- Formed 33 new companies (down from 38 in 2003);
- Employed 18,880 people (down 9% from 20,750 in 2003);
- Employed 8,690 people in R&D (down 10% from 9,700 in 2003);
- Spent €1.4bn on R+D (down 19% from €1.7bn in 2003)
- Had 195 new drugs in the clinic or awaiting approval (down 3% from 202 in 2003);
- Had 145 products approved/ on the market (up from 112 in 2003)
- Generated over €3.76 billion of revenue (down 16% from €4.5 billion in 2003);
- Reported €770 million of new equity investment (up 43% from €540 million in 2003);
- Reported 148 collaboration or fee for service contracts, excluding software deals
- Was involved in 28 merger and acquisition deals with other companies, with UK companies being the acquirer in 19 of them.

The downward trend in 2004 employment and financial metrics in the UK has two explanations: firstly, there has been a trend towards consolidation across the sector in the whole of Europe; secondly, some exceptional events at prominent UK firms have exacerbated the numbers.

### European comparison

Using the same definition of healthcare biotechnology, the same general trends of falling employment, falling numbers of companies, and fewer new companies forming are seen among the UK's main European competitors - Norway, Sweden, Denmark, Ireland, Germany, France and Switzerland (the last three countries are covered in detail in the DTI report - <http://www.dti.gov.uk/files/file31856.pdf>). However, in contrast with the UK, R&D employment and R&D spending increased. Perhaps the most significant change within this European subset was the 57% increase in external equity finance. Taken together, the healthcare biotechnology sector in those seven European competitor countries in 2004:

- Comprised 1050 companies (down 4.5% from 1099 in 2003) ;
- Formed 47 new companies (down from 97 in 2003);
- Employed 54,130 people (down 0.7% from 54,490 in 2003);
- Employed 23,200 people in R&D (up 1% from 2003, 22,900, up 1%)
- Spent €4.55 billion on R+D (up 0.5% from 2003 at €4.54 billion)
- Generated over €13.8 billion of revenue (up 5.4% from 2003, €13.09 billion)
- Reported €1.07 billion of new equity investment (up 57% from 2003, € 780 million).

The UK healthcare biotechnology sector is consolidating and has been doing now for a number of years, since the last financing boom in 2000/2001. Between 2001 and 2004, the number of UK healthcare biotechnology companies fell 16% to 350. At the same time, employment fell 17%, employment in R&D fell 12%, revenue fell 25% and R&D spending fell nearly 30%.

This is clearly a significant downward movement in key metrics, but much of the year-to-year reduction in employment, R&D spending and revenue can be attributed to events in some of the UK's leading companies. Thus, the restructuring and downward trends that have been seen all over Europe were exacerbated in the UK over the 2003-2004 period by the combination of a small number of major events and the conventions that Critical I uses in gathering its data.

## Exceptional UK events in 2004

Take, for example the drop of just under 2000 people from the biotechnology employment statistics in the UK. Nearly one third of this total can be attributed to Warner-Chilcott, the speciality women's health company, which in October 2004 was subject to takeover from US private equity investors for £1.62 billion. The company continues in business and indeed is in rude health, but the private equity move meant that that company headquarters have shifted from Northern Ireland to the US. Most of the employees have been reallocated within the Critical I survey accordingly.

Other contributions to the UK's reduction in employment came from the merger of British Biotech with Vernalis (most of British Biotech's 200-plus Oxford-based employees did not migrate to Vernalis' Cambridge site); UCB's acquisition of Celltech (around 80 UK employees were shed); and Chiron Vaccines (where some 140 people were let go as regulatory action led to the suspension of Chiron Vaccines' UK manufacturing license in the second half of 2004).

The suspension of manufacturing operations at Chiron Vaccines also had an impact on overall UK healthcare revenues. It meant that the company produced virtually no Fluvirin influenza vaccine for the whole of the 2004-2005 'flu season, a revenue loss of over €200 million accounting for over 27% of the reduction in UK healthcare sector revenues between 2003 and 2004. The reallocation of Warner Chilcott's revenue accounted for over €300 million. A third contribution – also of over €200 million - came from Acambis: the company had registered sales of £169.1 million (€239.6 million) in 2003, but was coming towards the end of the end of its fixed-price contract for the supply of smallpox vaccine to the US Centre of Disease Control. Its 2004 revenues were only £85.5 million (€135 million) for 2004. These three standout results accounted for virtually all the 2003-2004 revenue reduction in the UK.

A similar pattern emerges from a closer examination of R&D spending. Significant R&D spend reductions totalling over €100 million were seen at Vernalis/British Biotech, Warner Chilcott, and Chiron Vaccines, driven by the same events as described above. In addition, there were retrenchments in R&D in 2004 at companies such as Alizyme, Oxagen and Oxford Biomedica but these were of a different order of magnitude.

The large rise in the UK's allocation of approved healthcare products from 112 in 2003 to 147 in 2004 is also, unfortunately, a statistical oddity. Chiron made the UK its worldwide vaccines headquarters, which meant that over 30 approved vaccine products were allocated to the UK, rather than to the US, for the first time in 2004. Even without this boost from Chiron, however, UK biotech has maintained its position as Europe's most productive sector.

In summary, then, much of the headline data can be explained by events at a few significant companies. The underlying trend in the UK's healthcare biotech sector may not be buoyant, but most of the sector is far from being in retreat. Indeed, the UK remains the largest European biotech sector in terms of employment, revenue, R&D spending and investment although, as has been the case since 2001, it has fewer companies than Germany. Furthermore, despite the decline in some metrics overall, 44% of the UK's biotechnology companies (all sub-sectors) created additional employment between 2003 and 2004. This is not as high a proportion as in France (57%) and some other younger European sectors, but it is higher than in the US and in European nations such as Finland, Netherlands, Ireland, Portugal and Italy where a young sector has been apparently stopped in its track by the paucity of finance.

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