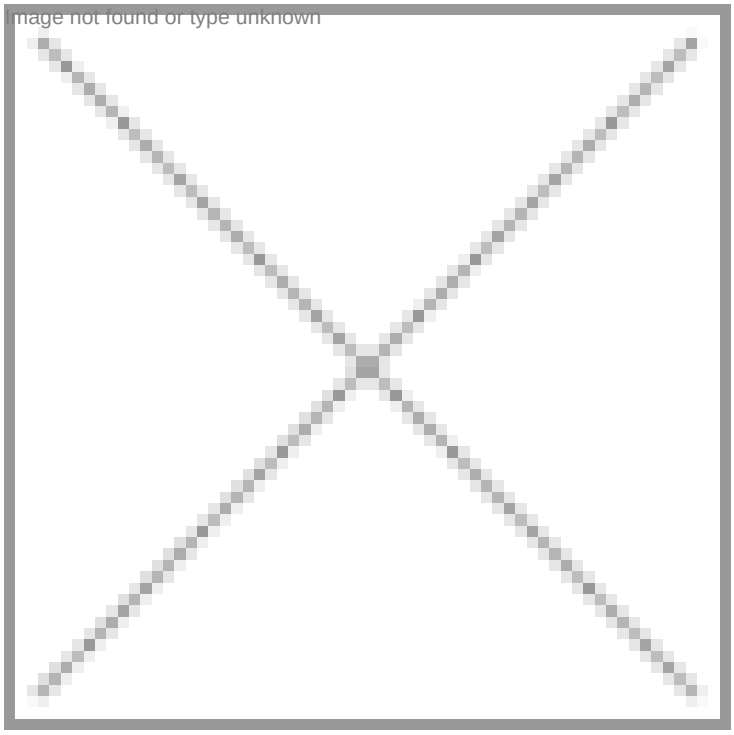
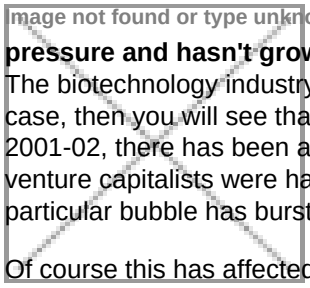
BioSpectrum the business of Bio & Health Sciences

â€œThere are about 480 companies in the biotech area, employing about 23,000 people,â€?

17 March 2004 | News



Prof. Sir David King, Chief Scientific Advisor, HM Government, and Head of the Office of Science and Technology, DTI.



UK biotechnology industry? Recent reports say that the UK biotechnology industry is under pressure and hasn't grown as expected...

The biotechnology industry worldwide is under pressure. If we take the US as the leader in the biotechnology, which is the case, then you will see that all of the spinouts and the new business activities have gone through diminished activity. Since 2001-02, there has been a drop in the activity, largely driven by the shortage of the venture capital funding. Up to that point, venture capitalists were happy in investing in new ventures, anticipating that the results would come eventually. That particular bubble has burst. Now, they have become much more critical.

Of course this has affected us as well. In the UK, we have the biggest hi-tech cluster in Europe for biotech as well as nano-technologies, which we call the golden triangleâ€”London, Cambridge, and Oxford. I know from a recent analysis that for 2002-03 in the Cambridge area, venture capital expenditure actually increased, while that in the US and Europe was decreasing. In fact, in 2002-03, 10 percent of the all venture capital funding went to the Cambridge cluster (10 percent of Europe's funding). So you get some indication from that figure, as Cambridge is only one part of that golden triangle. In fact, we have many good clusters developing in other centres too. The UK is still strong in terms of new companies emerging. If you ask me, am I optimistic about the future of the biotechnology industry? The answer is yes I am.

What is the size of the UK biotech industry and what are its strengths?

There are about 480 companies in the biotech area, employing about 23,000 people. There are many strengths amongst those companies. But you will know that we are very strong in the pharmaceutical industry. So it is not surprising that many of the biotech companies are linked into the pharmaceutical type. Post-genomics is generating companies; neuroscience development from the brain science research is seeing some spinout companies; bioinformatics is active. We are seeing some promising activity in stem cell research, not just in Cambridge and Oxford, but also in Sheffield.

In the visualization and imaging area too there has been a lot of development. A company is working on general imaging technique, which is new in the Terra Hertz spectroscopy range. It is in the Terra Hertz range of the electro magnetic frequencies and the radiation is capable of going through many layers of clothing. For example, you can make a three-dimensional image of a person and find out if the person (in the interest of preventing terrorism) is carrying any explosive against the skin. Detecting a metallic object is easy, but this technique helps in detection of plastic explosives. It is a big breakthrough in technology. Why is this of interest to biotechnology? They have demonstrated that you can scan people's skin for cancer or so. There are many imaging technologies.

Of course, the area of vaccine development is exciting too. Further, in the UK, there is a big project to stimulate the biotech activity. Developed by the Medical Research Council, this project will involve taking the blood and saliva samples from a wide number of people and follow their clinical history. Using the samples, we can analyze the genome and from the history, if we see that a small group of people has the tendency to develop a particular illness, we can trace it back to their genome. This is a project that will continue for many years. It is based on 500,000 people. The idea is in the future, we will expect to prescribe to people the drugs that will suit their own propensity based on the genome analysis. So post-genomics is a very important area.

We have several general strengths. In fact, I have recently completed an analysis of the scientific strengths of nations and am sending it to Nature. My measure of scientific strength is the top one percent most sighted papers in every field and then looking at the national distribution. The UK's distribution overall is 11.5 percent.

For the size of our population, we have few big impact areasâ€”medical science, life sciences, biological science, and environmental sciences. So we have a very good science density in the UK. I think it derives from a very long tradition. The important point is that the real strength is in the life sciences. What we are seeing through the biotech industry is that this is paying off.

Does the UK biotech industry look to collaborate with overseas (particularly Indian) companies and/or scientific institutions and in which, particular, areas?
Recently, the British Chancellor of the Exchequer Gordon Brown, in a speech to the business communities of the world, outlined that the areas where the government can best hope to act to stimulate this kind of activity was very simple. He said â€œwe should reduce the regulation and should invest in the science and skills baseâ€?. Because what the government can best do is provide a stable platformâ€”strength in knowledge from which the industries can develop. But what he specifically did not say is that we
should promote a particular activity.

This should be left to the market. Similarly, in terms of our biotech industry, we leave them to interact with the biotech industries of the other countries or to develop footholds in other countries. That is up to our companies. Of course, UK TI is actively promoting British companies abroad. But this is the oil to keep the wheels turning.

With respect to India: You know that our Prime Minister was in Bangalore (it was on my suggestion that he came to Bangalore). He was impressed with a few chief executives that he met. And when he made a speech about science in the UK (Science Matters), in his introduction he referred to his time in Bangalore and said â€œI am worried that the Indian biotech industry would overtake ours because India does not seem to be faced with the public that is sceptical about GM, whereas our public is.â€? He was impressed and I am impressed too. But your biotech industry is still very young and still in an early stage of growth. Our industry is looking for partnership with an eye for win-win. They are more likely to look at the US, Germany, and other EU countries. But it is best, if you ask from the industry itself.

As regards to the concerns what I can say from my visits to India is that the â€œapparentâ€? position on protection of IPR is very important to our industry. I think it is very important for India to clarify for our industry on exactly what the position on IPR is in India because our companies will not move with confidence into a country unless they feel that their IPR will be protected. That is an issue because I was there at the time of the Prime Minister's visits and this issue was raised several times with us. But things are now changing in India. You have a brilliant scientist RA Mashelkar, who is helping us a lot on IPR and I know that he understands the situation in India extremely well. And I know, it is moving in the right direction.

What are the key principles of UK's biotechnology policy?

The Bioscience Innovation Growth Team (BIGT) report lays out a policy.

We are a fair trade nation and we believe as a free trade nation we should not put trade barriers to imports and equally we prefer to trade with nations that also do not put barriers. Free trade within a regulatory process, which is fair and balanced and science based is important. So if we take GMs, we have a very rigorous regulatory process looking at all aspects of GM technology and how it might impact on environment or health or animals. Only those new products, which can get through all of these careful scrutinies can be placed in the market. We believe in free trade, but carefully regulated in a fair way.

We are particularly proud of our very strong links particularly between academia and government funded research institutions and industry. If you ask me what is the biggest change in the UK in the last 20 years? Then it is in that area. Our universities were often accused of being ivory towers. This is not true. The universities that were most often accused of being ivory towers were Oxford and Cambridge. Actually, Cambridge led the way out of it. Now the biggest hi-tech industry is around Cambridge with 50,000 employees working on all aspects. So it is a massive turnaround. Our government is supporting all of these developments by spending more on science. The budget through my office was £1.45 billion in 1997. Today, it is £2 billion (2004). In 2005-06, it will be £2.9 billion. So we will be doubling the science research budget. So here is the statement that government believes what it states. That is what the government can doâ€"invest in the science space, invest in the knowledge transfer activity into business, and this we do invest again from this office, and stimulate the industry with balanced regulatory process.

We have a very important particular strength related to the biotech industry, which is the National Health Service. So one aspect of our work is to stimulate links between pharma, biotech, and the national health. What we want in other words is to bring new treatments from pharma-biotech industries into the National Health Service as quickly as possible so that our people benefit on health and the industry benefits from getting into markets quickly.

We do provide some help to firms to get private and public finance. But what is nice is the new cultural change we have. This means many groups are setting up as venture capitalists. Many of them founded by people, who laid money in their early phase of spinout company activities. These are the business angels, who are working in these cluster areas and they are now putting back their money. Now we are also encouraging R&D activity in the industrial sector. The Chancellor has introduced tax credits. If a company can demonstrate that they are spending money on R&D environment, then they are given a tax credit against their expenditure. So we are encouraging companies to spend more money on R&D.

How important is biotechnology in the UK's overall R&D efforts?
If we take the important health problems that we are faced with, we see a problem with obesity. Infectious diseases worldwide are a big problem. So each of these problems creates a demand on our industry. So there is much for the biotech industry to do. But of course, the government sees manufacturing industry as a whole as an important target area. For example, aerospace industry is important. But if you ask me which is important? I will say it depends on the market. It is a very dangerous game to say it is going to be biotech because we may find areas in physical sciences and engineering such as aerospace also developing rapidly. So we have to provide the stable platform right across the space so that we can play to our strengths.

Are there any ways by which the two countries can collaborate on research?
We have a science and technology agreement between India and the UK. I am the UK owner of that agreement. So recently, I was in India discussing the progress on that agreement and we will have a full meeting shortly to discuss the progress.

We have also established a new set of awards for the students who wish to come to the UK to do their PhDs. These are the Dorothy Hodgkin Awards. Dorothy Hodgkin was a Nobel Laureate and she took much interest in India, Africa, and China in particular when she was doing her research. What we have established now is a new set of awards that we want to see as the highest status awards for young scientists who want to really pursue a career in science. This will be fully funded by the British government and British companies. The scientists will study here and we expect them to go back to their countries and contribute to the development back home. The Awards are specifically for students from China, India, Hong Kong, Russia, and the developing world. So it is limited to those countries. My belief is that we (Northern world) have to be much more heavily engaged in capacity building activities in science, medicine, engineering, and technology. This is the start of our program. The first awards will be given in October this year. The awards will be offered by universities. In the first year, there are 130 awards, but we plan to increase it to 700-800 awards slowly.

â€"Ch. Srinivas Rao