

# East Hill Management Company Symposium

Chemistry Research Laboratory, 19<sup>th</sup> October 2004



East Hill

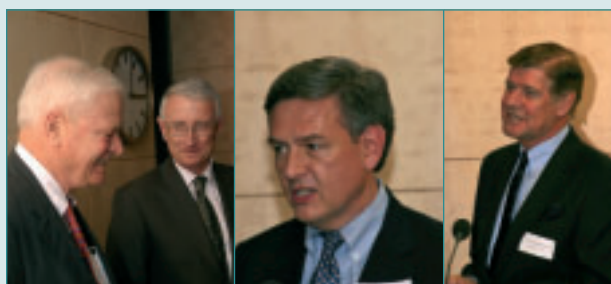


## Introduction

East Hill Management Company hosted a symposium in the new Chemistry Research Laboratory on 19<sup>th</sup> October 2004 to celebrate the success of Oxford researchers in commercialising their technologies with support from East Hill, the University and Isis Innovation. The symposium demonstrated the strong links between East Hill and the University, and the presentations highlighted the breadth of research commercialisation activities in Oxford in recent years.

The symposium was introduced by Landon Clay and Jeffrey Garner of East Hill. The Vice-Chancellor, Dr John Hood, Professor Lord May of Oxford, Professor Désiré Collen from Leuven, Dean Jeremy Knowles of Harvard and Lavinia Clay were amongst the audience of 50 who listened to six presentations from Oxford researchers who have formed spin-out companies with investment and support from East Hill. Professor Graham Richards welcomed all the guests to the £60 million Chemistry Research Laboratory (opened by the Queen on 20<sup>th</sup> February 2004), describing the achievements of the Chemistry Department in combining academic research excellence with commercial successes.

Researchers involved in six spin-outs from Oxford gave personal perspectives on spinning-out. The summaries of their presentations, which follow, focus less on the science, and more on the practical insights into being involved in a spin-out company:



Landon Clay and Dr John Hood, Jeff Garner, and Professor Graham Richards.

## Dr Ben Davis, Chemistry Department – Glycoform Ltd

“Glycoform is a biotechnology company which is based on fundamental biomolecular chemistry and the science of sugars and proteins. We are developing next generation bio-therapeutics based on improving protein drugs through controlled glycosylation producing more active and homogenous glycoproteins. We were established in November 2002 and with chemistry and patents developed at Oxford by the groups of Dr Antony Fairbanks and myself. This included significant seed funding which we have used to develop the technology through funding back into the university.

We have continued to receive good support from our existing and new investors, including further investment, and have relocated to our own facilities at Milton Park in Abingdon, as well as growing our team to eight people and bringing on a new full-time CEO, Michael Short.

My belief about the development of science is that it exists to improve and enhance people's quality of life. I think that Glycoform has been and continues to be an excellent way of achieving improvement in this area. I also know it gives the science we do a wonderful focus. In addition we have and will continue to create value, adding significantly to the local economy and UK plc.

We want to address things that are relevant, to turn chemistry into something that can cure people and make people's lives better.

Glycoform is a wonderful team of people, and I want to thank the Glycoform team, our research groups here in the Chemistry Research Laboratory and East Hill for all the support they have given us.”

**Professor Peter Dobson, Engineering Department –  
Oxford Biosensors Ltd**

“It all started back in around 1980 when Professor Allen Hill was studying glucose oxidase. In 1982 Allen showed the first cyclic voltammogram evidence of electrochemical behaviour which you could control and use from glucose oxidase. Allen realised this could lead to a completely new concept of biosensor for detecting glucose and other compounds in the blood. Allen raised about \$8m in the early 80’s to start the company that later became Medisense, sold in the 90’s to Abbott Laboratories for about \$800m. The University made virtually nothing out of that; it was pre-Tim Cook and Isis days.

*The breadth of opportunity for the business was extraordinary and we realised as a company that we had to have some focus in areas that would actually make money*

It wasn’t until 1999 that we built up a team of people again who could work in the biosensors area, and with help from Tim and Dr Herb Askew at Isis we developed the business plan, raised the first money and we formed Oxford Biosensors in August 2000. The breadth of opportunity for the business was extraordinary and we realised as a company that we had to have some focus in areas that would actually make money; we realised that the big money would be in areas like cardiac risk.

We concentrated on cholesterol, HDL and LDL sensors on an ink-on-plastic device and now have a multi-electrode device which from a pin-prick of blood gives the readout of cholesterol, HDL, LDL, and triglycerides. We have a truly generic platform technology.”

**Dr Luke Alphey, Zoology Department – Oxitec Ltd**

“Oxitec works with insects and insect genetics. Our aim is to contribute to reducing harm done by insect pests: eating crops, transmitting diseases such as malaria and dengue fever, and attacking livestock. Our core technology is RIDL (Release of Insects carrying a Dominant Lethal) a sterile insect technology by which sterile male insects are released to mate with wild females. Females who mate a sterile male will have no off-spring, so the population in the next generation is thereby reduced and if one can release enough insects, populations will collapse or be locally eliminated.

Where did Oxitec come from? I had the idea of using genetic technologies back in 1994 based on my career in Drosophila research. In 1999, now at Oxford and armed with some data rather than just an idea, I went to Isis who agreed to file a patent application. We published in 2000 which led to interest from around the world. We founded Oxitec in 2002 and in 2004 moved to Milton Park twelve miles outside Oxford. We now have six more patent applications and have made substantial technical and business progress in the areas we originally intended. We have also made unanticipated advances: we have moved into fish farming, which is too long a story to tell. Even within two years, a company may be doing things it had not anticipated when it first started.

This process led to a number of decision points for me, the inventor. I decided to delay publishing until after filing the patent in 1999. I turned down a job offer from the US government who wanted me to develop the technology in the US. Initially I took the route of licensing the technology which did not work because it required encouraging people to develop my idea, and that’s a difficult thing to do. This meant I would have to do it myself. In order to start a company we went back to Isis and the challenge was to raise the money, which we did in August 2002.

The company has been going two years and is very exciting. Two years ago I would not have been able to predict where we are today and I’m sure I can’t predict today where we will be in even two year’s time. But it has certainly been an interesting experience in many, many ways. And it has been really quite a lot of work: filing a patent is quite a lot of work, and setting up a company is quite a lot of work.”

**Professor Adrian Hill, Nuffield Department of  
Medicine – Oxxon Therapeutics Ltd**

"I am one of the four founders of Oxxon Therapeutics, founded in June 1999 (together with Joerg Schneider, Andrew McMichael and Geoffrey Smith), over five years ago now, it does go quickly, a University spin-out company. We work on vaccines. The three vaccines we would most like to have – AIDS, malaria, tuberculosis (for the developing world) – we are still missing. Our interest is in stimulating cellular immunity which could be used against HIV, malaria, melanoma and various forms of cancer. The basis of Oxxon is a technology called prime-boost vaccination involving increasing immune responses very powerfully with pox viruses. We raised seed funding of £1.1m in 1999, £5m in 2000 and £15m in 2003.

If you are going to start a spin-out company, what's in it for you, the investors, the University and the world. I wouldn't presume to tell the investors what might be in it for them, but for you (researchers) the main driver is that you have got to want to do this and if you don't get a buzz out of doing it and you don't find it exciting, then it's not for you. It really is very exciting to take ideas from your own research and apply those to some of the great diseases of mankind and make your ideas become reality.

*Of course what drives a lot of people is the financial reward. I don't think that should be the main driver and frankly if it is for you, you should not go to see a venture capitalist, you should become one*

It does impact your own research. Interacting with biotech has been very useful in thinking about the research programmes in the University, helping focus on diseases of the developing world. Of course what drives a lot of people is the financial reward. I don't think that should be the main driver and frankly if it is for you, you should not go to see a venture capitalist, you should become one."

**Professor Chris Schofield, Chemistry Department –  
ReOx Ltd**

The scientific work that led to ReOx came out of a wonderful collaboration between the group of Peter Ratcliffe, Chris Pugh, Patrick Maxwell from the Henry Wellcome Centre and our group in the Chemistry Research Laboratory.

The scientific story is concerned with the molecular mechanism of hypoxic response, one manifestation of which is in the physiological changes that occur in the humans on going to high altitude where oxygen concentrations are lowered.

The body responds to the challenge of lowered oxygen availability by increasing the number of red blood cells. The hypoxic response is important in therapeutic terms since many tumours are hypoxic (and so induce growth of blood vessels) and heart disease commonly occurs because occlusion of the coronary arteries causes hypoxia and consequent ischemic damage.

When the work was initiated we had no objectives to commercialise the research but only to explore the molecular mechanism behind the hypoxic response. However, following the identification of a set of enzymes that are pivotal to the response we began to think about medicinal and commercial applications.

We contacted Isis and the first of series of patent application was filed. Soon after we spoke to several large pharmaceutical companies but whilst they applauded the science they, unlike us, were unconvinced regarding the practical utility of the work. At about the same time were also approached by smaller companies and Isis probably could have licensed the intellectual property, but chose not to do this because we were keen that the project would benefit from partnership with a company capable of taking the discoveries associated with the hypoxic to the clinic.

ReOx was founded, with backing from East Hill and others, in June 2003. We then spent a considerable time interviewing CEOs as we believe recruiting the people is the best way to progress the company and Barry Porter was appointed CEO in January 2004. The focus of ReOx and its commercial partner is now to develop the scientific discoveries into a tangible product.

**Professor Jeff Errington, Sir William Dunn School of Pathology – Prolysis Ltd**

“I’m going to tell you the story about the company that I’ve been involved with for about the last six years. I’m an academic. I work in the Sir William Dunn School of Pathology but I’m also on a part-time basis Chief Scientific Officer of Prolysis Ltd.

My main interests over twenty years had nothing to do with commercialisation of science. My lab works on bacteria; specifically *Bacillus Subtilis*; looking at how cells divide and why cells are the shape they are. In the mid 90’s pharmaceutical companies were switching the way they searched for antibiotics to a new ‘target-led’ approach. We recognised that we had an opportunity to contribute to the antibiotic development programme. We were very familiar with several interesting new targets for antibiotics and we realised that we could set up novel ways to screen for chemicals that would work on those targets.

*Deeper involvement in the commercialisation process might actually be interesting and fun, and certainly that has been borne out by everything that’s happened in the last six years*

From my perspective there are four advantages of a spin-out:

The most important advantage was that this was a route to proof of principle. We tried the license route originally; we filed patents on assay methods but found pharmaceutical companies were reluctant to license in because they didn’t have the expertise within the company to make them a reality. Second, if we could set up a company, we had a ready conduit for exploration of new ideas and intellectual property. Third, deeper involvement in the commercialisation process might actually be interesting and fun, and certainly that has been borne out by everything that’s happened in the last six years. Finally the company could manage a lot of things that academics are generally not very good at, such as marketing and other commercial activities. The company can employ people who are real experts in doing those kind of things.

The early stages of the company involved much time and effort, and this is one of the take home messages for those people who are thinking of doing this. What is the market? How many companies involved? Spending how much? What is our competitive position? How many people do you need and how will you find them?

We originally founded the company in June 1998 as Microgenics, and had a major funding round led by East Hill in 2002; a lot of thanks to Jeff and Landon for helping us with that. We like to boast now that we’re the UK’s leading antibiotic discovery company, and I’m actually very proud to be able to say that.

Finally, although the ultimate objective is to actually make some money from this process, I hope I’ve given you the idea that there are huge challenges in going the spin-out route. From a personal and scientific point of view I could thoroughly recommend it to anyone who believes they have the stamina and drive to do it. Remember, it will be a huge amount of work in addition to the interesting scientific and personal challenges involved.”

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