Cambridge Science Park
Founded by Trinity College
in 1970

Autumn 2004

catalyst

CAMBRIDGE SCIENCE PARK NEWSLETTER

> Genzyme's new European research facility
> Smartphone technology from WACOM Components
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New arrivals

Axxcelera Broadband Wireless UK Limited

Axxcelera Broadband is a wireless networking solutions company that is developing leading edge technologies for deployment of broadband communications over the Internet. Axxcelera solutions offer point-to-multipoint and point-to-point fixed wireless applications supporting the UNII band, 5.8GHz ISM and 3.5GHz. Axxcelera is headquartered in Santa Barbara, California, with the Cambridge office directing R&D and providing additional customer technical support.

www.axxcelera.com

Ember Europe Limited

Ember is a specialist in both standard and non-standard embedded wireless networking for low-cost, low-power applications. It is a leader in IEEE802.15.4, and one of only a handful of companies which have been elevated to the role of promoter status within the ZigBee alliance. Ember provides a fully integrated hardware and software solution coupled with training and support services. Its customer base spans multiple industries, including building automation, asset management, industrial automation and defence. The company has its headquarters in Boston, Massachusetts.

www.ember.com

WACOM Components Europe Limited

WACOM Components Europe Ltd is the UK subsidiary of WACOM Europe GmbH and part of the global WACOM Company Ltd, the market leader for pen tablets and a pioneer in the development of the pen as an input device for computers. WACOM Components Europe Ltd is currently focused on the development of pen-based interface technology for the next generation of mobile smartphones.

www.wacom-components.com

Innovative Manufacturing Research Centre

The IMRC is an EPSRC funded research group headed by Dr Bill O'Neill and is a part of the Institute for Manufacturing, a division of the Engineering Department in the University of Cambridge. The research group conducts research and development of novel manufacturing methods that are high speed, flexible (no fixed tooling), reconfigurable and deliver time compression. The research activities include the recently developed high-brightness fibre laser, micro-machining using nano- and femto-second pulse lasers, direct-to-metal rapid manufacturing with selected laser re-melting process, and cold-gas dynamic spraying/ manufacturing.

www.ifm.eng.cam.ac.uk

Enecsys

Enecsys has developed proprietary power electronic control and Integrated Circuit (IC) technology to allow for the next generation of power conditioning units for grid-connected renewable energy applications, initially focused on solar energy solutions. Enecsys has filed its first patent covering the broad platform technology and plans to release its first product in 2005.

Left: Dr Fairbrother, Senior Bursar, Trinity College & Director, Cambridge Science Park (centre), welcomes Enecsys to CSP

www.enecsys.com

The gender agenda

Building a network for women in science and technology

Since its foundation ten years ago, the Association for Women in Science and Engineering (AWiSE) has developed a nationwide network to support women in an overwhelmingly male-dominated sector. Catalyst talked to Chair of the Cambridge branch Dr Jenny Koenig about its ongoing relevance and plans for this forward-looking organisation.

Despite the apparent acceptance of gender equality in twenty-first century Britain, there are still many areas in which reality does not reflect the statute books. Careers in science, engineering and technology (SET) are a prime example; successive governments have placed a high priority on this dynamic industry sector as a key driver of the UK economy, and yet all too often the talents and potential of women in this field are under-utilised or not fully developed. Dr Koenig, senior research fellow at the Department of Pharmacology at the University of Cambridge and Chair of the AWiSE Cambridge branch, refers to a few telling statistics to illustrate the point.

"The one scientific career with more women than men is that of laboratory technician; apart from that, women are hugely outnumbered," she says. "Despite the fact that women and men go into higher education in equal numbers these days, the proportion of female lecturers and researchers in SET is 19%, while for professors it's just 3%. Even in the biological sciences in which women students outnumber the men, few women survive to reach positions of seniority and influence."

Issues of disparity between the sexes in the scientific and technological sector are hardly new; indeed, it was in a report on the subject commissioned by the Government back in 1994 that the seeds were sown for the formation of AWiSE. *The Rising Tide*, as the report was entitled, noted the value of networking and mutual support among women as a means of counteracting the gender imbalance in this area, and it was under the guidance of the late Dr Joan Mason, a former Open University lecturer and resident of Cambridge, that AWiSE was first established. Ten years later, the organisation she helped to found continues to provide an important resource for women working in this field.

"We're really here to act as a forum for discussion and debate, a centre for information and of course as a support network for women in SET," explains Dr Koenig. "Here in Cambridge, we have various meetings to look at issues that are of importance to women, and the networking element is also very important – we're very much about reaching out and responding to people's immediate needs at a local level.

"AWiSE is about actually meeting people face to face – so we have the website which is useful as a reference tool and a link to further information, but there's no substitute for actually talking to somebody in person."

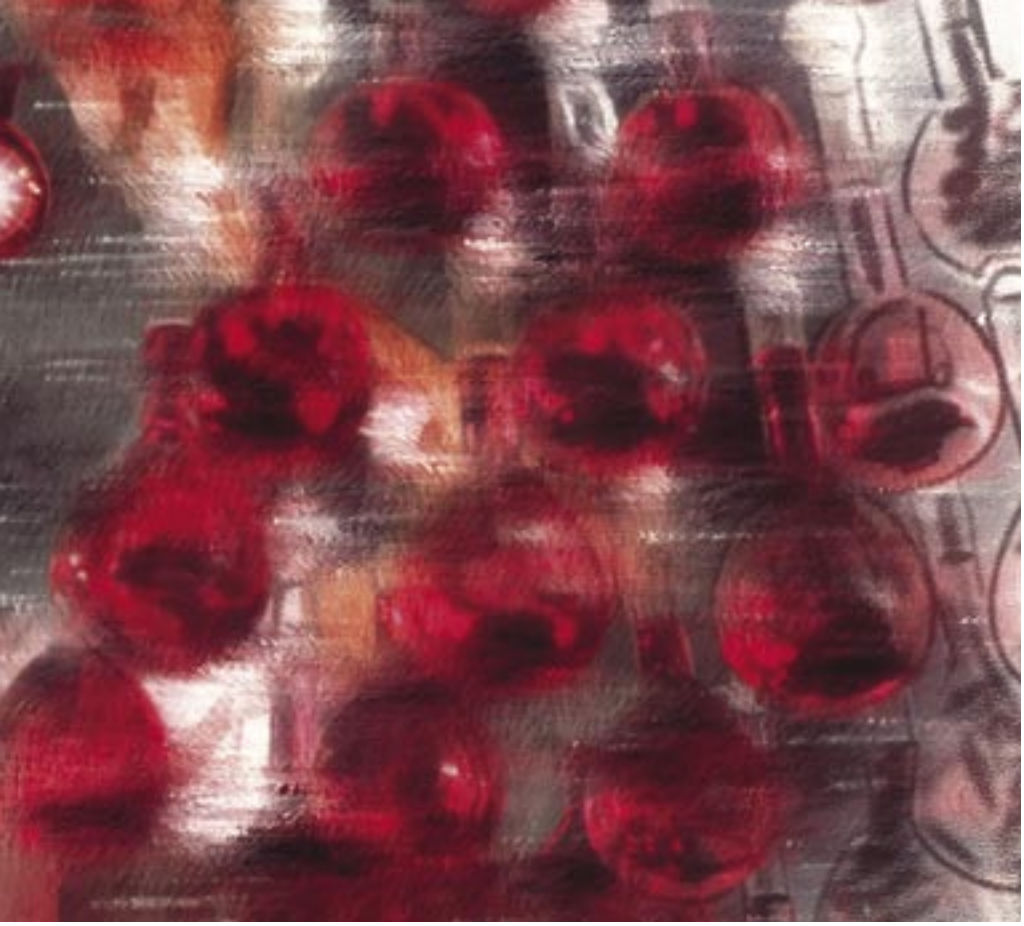
"AWiSE is about reaching out and responding to people's immediate needs at a local level"

Alongside regular lunchtime meetings at the Royal Society of Chemistry facilities on Cambridge Science Park, AWiSE Cambridge organises a range of special events around various themes, the next of which is to be held at King's College, Cambridge on 11th November 2004 and is dedicated to the memory of the organisation's original leading light, Dr Joan Mason.

Entitled *Enriching Science and Engineering: Exploring the Business Case for Gender Diversity*, the meeting will feature a variety of guest speakers including: Anne Campbell, MP for Cambridge; Dr Gillian Samuels, Senior Director, Pfizer; Dr Jenny Holmes, Diversity Director, Global Research and Development, AstraZeneca; and Bill Bonfield, Professor of Medical Materials at the University of Cambridge. Dr Koenig is looking forward to what she believes will be an event focused on a very topical theme.

"It's all very well me as a female employee saying 'I really need these sorts of conditions to keep me in this career', but that's not going to be any use if my company doesn't actually see a way that it's going to benefit them. Similarly, the Government is always saying that it wants to keep skilled and trained women in the workforce, especially in the scientific and technological arena, but often when it comes down to the individual company, the business case might not be so clear when it comes to looking at the balance sheet.

"At this meeting, we're going to be looking at how it can actually be a positive commercial policy to support gender diversity, and explore some of the ways the Government and



businesses can encourage this. If we look at the business case for this, perhaps it answers some of those people who suggest that women with children are getting more help than those without. It's an entirely justifiable issue to raise, and that's why we're asking employers to think through the whole subject thoroughly so that we can make sure that policies work for everybody – we're not asking for special treatment."

While the ongoing question of how to balance a career and a family remains hugely emotive for women across many industry sectors, Dr Koenig talks with personal experience of how it can affect those working in the area of SET.

"Many women get to a stage in a career where they're finding it hard to manage a family and a long-hours job; perhaps their husband has a long-hours job as well, and they eventually become so stressed they just can't work properly. It's at this point in many rigid employment structures that a lot of women feel they have to leave their careers in order to care for their family.

"We're looking at how it can actually be a positive commercial policy to support gender diversity"

"I feel it's very unfortunate if a woman has to do that. If you're a scientist, an engineer or a technologist, you've trained hard and you might have accumulated 20 years' experience in your field. But when you feel you can't balance things properly, it becomes too difficult, then you may end up voting with your feet – that's a real personal loss in my opinion, apart from the loss to society and the economy as a whole."

It is as a forum for discussion that AWiSE hopes to promote constructive and practical solutions to such issues, and the development of flexible working practices forms a central part of this multi-faceted debate. The Cambridge branch of AWiSE is currently conducting a questionnaire to collate women's experiences with regard to part-time and flexible working, the results of which will be shared at the meeting on 11th November. However, it is clear to Dr Koenig that some trends are already very apparent.

"We've got a lot of anecdotal evidence to say that if you go part time, your promotion prospects drop dramatically. And having a career break can also be problematic – science and technology moves on so quickly, if you're out for too long, you can be left behind.

"On the positive side, however, these are some of the issues that we're trying to address at AWiSE. Women can come to us and discuss their particular situation, talk about how they might approach their employer, and look at some of the options open to them with someone who has been through a similar experience. We don't pretend there are

Association for Women in Science and Engineering

any simple solutions to all the problems that women might face in this field, but I think that just by working together more and sharing our experiences and ideas, we can help to make a difference."

www.awise.org

For information on AWiSE, activities in Cambridge or details on the forthcoming meeting on 11 November 2004, email Dr Koenig at jk111@cam.ac.uk .

Natural selection

CSP's Estate Manager talks about his on-site role

He knows Cambridge Science Park perhaps more intimately than anyone else – and so he should, after nearly two decades of helping to make it one of the most admired sites for hi-tech businesses in Europe. Catalyst talked to Estate Manager Danny Fuller about how he and his team help to maintain its reputation.

"It's called Cambridge Science Park: the companies here take care of the science, and I take care of the park side of the equation," explains Danny, who has been a feature on the site for 17 years in total. "We have a team of four full-time gardeners and one part-time contractor to look after anything that's outside of the buildings."

Certainly it's a demanding remit on a 140-acre site that includes three lakes, a network of footpaths and cycle paths, a 24-hour security system and of course the extensive landscaped grounds that help to make the Park such a popular place for companies to work in.

"A lot of the work is seasonal," Danny continues. "In the summer we're extremely busy maintaining the grass areas and there's also a lot of hedge and shrub cutting to be done. In the winter we tend to concentrate more on weed control, and the other big job is to keep the roads free from snow and ice when the weather deteriorates.

"I'm always open to calls from tenants – then we'll see if we can resolve any problems"

"When I started, I was the one and only gardener/caretaker to take care of everything. Obviously as the Park has grown, so the role

Below: Danny Fuller at Cambridge Science Park

has grown with it – now I've got a team to help me. Ensuring site security is one area, for example, in which we've certainly made a lot of improvements over the years."

Living on site with his wife Frances, Danny is on call around the clock to deal with any unforeseen problems that occur as well as the more routine out-of-hours tasks such as liaising with the security patrols, organising road and carpark sweeping, and checking on the streetlighting. Nevertheless, it's the variety and element of surprise which still keeps him motivated after so many years on the job.

"You never know quite what's round the corner, what the next phone call is going to bring – whether it's praise for something we've done well or a problem to be dealt with. But I'm always happy to hear from the tenants: if there's something we can sort out for them, we'll try our best to get it done as soon as we can – it's nice to keep them satisfied. So I'm always open to calls – then we'll see if we can resolve any problems."

As a keen amateur photographer, Danny has captured on film some of the wide range of animals that can be found at Cambridge Science Park. "There's a huge variety of wildlife here – I don't think many people realise how much. We've got muntjac deer, grey squirrels, foxes, stoats, weasels, water voles, and we've even spotted chipmunks. The bird-life includes kingfishers, herons, kestrels, owls and two types of woodpecker – although the latter are not always popular with tenants when they decide to drill through various boards put up around the place!"

"I don't think a lot of tenants realise how much open space there is in the middle of the Park"

Despite the proximity of this rich natural habitat, however, Danny is uncertain as to whether it is used to its full potential. "I don't think a lot of the tenants realise how much open space there is in the middle of the Park – and that they are entitled to use this space for leisure activities. Certainly in summertime we get a fair number of people going out for picnics in the lake areas, but I think a lot of people don't even realise they're there. There's a full network of paths through the centre, so I'd encourage people to use them."

Nevertheless, after nearly two decades in the role, one thing Danny is firmly convinced of is that Cambridge Science Park stands head and shoulders above the competition. "It's got the best landscaping!" he begins with a smile. "And where else can you find a science park that has this amount of green space to each building? Where else can you work and look out across lakes like these? Where else can you sit and see this variety of wildlife around you? Where else can you get the level of support that's offered here? We're the best, I'm sure of it."

Contact: **Danny Fuller**
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Email: **danny_csp@yahoo.co.uk**

Photo taken by Danny Fuller

Forward thinking

A new chapter for Genzyme

When the global biotechnology company Genzyme decided to establish its first dedicated research facilities in Europe, it chose Cambridge Science Park as the site for its new centre. Catalyst spoke to Bruce Roberts, General Manager for Genzyme Research Europe, and Cath Hutchings, Head of Phage Display, to find out the story so far.

"Genzyme is already a very international company – we've got more than 6,400 employees around the world and offices in all major European countries," explains Roberts, who is also Vice President for Applied Genomics within Genzyme.

"However, up until recently, our research has largely been based in the US, while our manufacturing facilities have been located around the world, including one site near to Cambridge in Haverhill. As a global organisation, we felt it didn't make sense to have research so centralised in the US, and we've been looking for some time to establish a dedicated research site within Europe.

"At the same time, there was a parallel initiative looking at a technology to create designer antibodies for targets that are of interest to us – something that I've been working on personally for the last three years. As we got close to acquiring that technology in September 2003, our initial thoughts were to set up a facility in Massachusetts. But what actually happened was that the two initiatives converged at the same point; we realised that this was a great opportunity to establish our research presence in Europe, and once that decision was made, all roads have led us to where we are today."

Certainly it's been a flying start: after selecting the site back in autumn 2003, Genzyme moved into the building which they share with Xenova in April 2004. Since that point, Cath Hutchings has joined Roberts to help put together a rapidly growing team of scientists and to get the operation up and running within 12 months of its original conception. Nevertheless, there's been no time to stand back and take in their achievements to date, as Hutchings soon points out.

"It's been very exciting but really exhausting at the same time. What I've enjoyed about the whole experience is that you know exactly what you've got to get done, but when you walk through the doors in the morning, you just don't know what's going to meet you. That said, I think we're fortunate to have gathered a really good team around us here, and that has been one of the intrinsic elements to our success so far."

Similarly, the early identification of Cambridge Science Park as a suitable site and the proximity of colleagues in nearby Haverhill have greatly aided what has clearly been a complex and challenging process.

"Because of our presence in Haverhill, and in particular the help of the Facilities Manager Peter Thomas, it meant I had a lot of advantages when we began to start to look for somewhere to move into," says Roberts.

"When you walk through the doors in the morning, you just don't know what's going to meet you – that's what's exciting"

"Once the decision was made to set up in the UK, we moved at a furious pace to get to where we are, and there were various criteria that were important to us. Obviously Cambridge is a centre of excellence in biotechnology, so that helped to focus our geographical choice, but in terms of the facilities themselves, we also had a number of important considerations.

"We weren't looking to construct a new site from scratch – we needed to move into somewhere that was ready to be used right away for cellular and molecular biology, and it needed to be able to support the kind of research that we wanted to do. We identified this site fairly early on and through the sub-leasing arrangements we've agreed with Xenova, we've got an excellent place to get started but, crucially, it also has built-in capacity for us to expand when necessary."

Initially, the team is focused on developing the commercial applications of phage biology, a process which uses viruses to infect bacteria, transfer genetic material and reproduce inside them, thereby facilitating the creation of a library of potential targets, as Roberts explains.

"The power of this technology is that it allows you to look at very large combinatorial libraries with huge biological diversity and characterise them. Out of this entire repertoire of different binding mediums, you can then look for the specific one which has exactly the right properties you're looking for in terms of binding to your target of interest.

"The technology that we've put in place here is very broadly applicable across a spectrum of different disease situations. For the time being, because we're a small group, we are focused on a specific set of targets that were identified by our colleagues back in Massachusetts.

"Looking to the future, however, we'll have the ability to identify, validate and characterise targets entirely from scratch at this site. That is basically the goal for this site: a fully integrated programme with all of the capabilities to work with investigators in the local area and identify targets we believe are meaningful, do the molecular characterisation and then complete the whole process of finding antibodies for that target."

With a rapid growth plan and a structured lease agreement that provides for additional floor space at their existing site when needed, the laboratories for Genzyme Europe Research could be home for up to 40 research scientists within a few years. It's clearly a major investment for the Genzyme Corporation, but there remains an identifiable entrepreneurial spirit within the new team that is very familiar at Cambridge Science Park.

"I think the whole team appreciate that this initiative has got the feel and drive of a start-up company – that's part of the attraction," explains Hutchings. "Of course, we have the security and resources of a large and very successful biopharma company behind us, but we also have the autonomy to set things up the way we feel is right – it's a very flexible and dynamic environment, and we need to be self-reliant and confident in making our own decisions."

"This is just the beginning – what you see today will be dramatically different to what will be here a year from now"

The ambitious and dynamic nature of the enterprise comes as no surprise to Roberts, however, who has already been witness to huge change within the company he has worked for since 1989.

"Genzyme has undergone multiple transformations during its existence – it's a very forward-looking organisation and it's very much aware of the powers of technology and how they can be utilised in order to create new therapeutic agents.

"Working on this new initiative in Cambridge, we don't consider ourselves to be any different in that regard. What you see today will be dramatically different to what will be here a year from now; the activities that we start with today will form a nucleus around which we will continue to build other areas of expertise and capabilities, both here within this site but also more broadly in Cambridge and the UK.

"Exactly what the future holds for us is difficult to say at this point. We know there will be continued growth and diversification in the types of activities that we are engaged in, but really that's just the beginning. I'm not just looking at what's here today, although I think it's a great start and there will be a lot of very powerful things that will come out of it, but where we'll be a year or even five years from now – that's the real excitement."

www.genzyme.com

Below: the team at Genzyme
Bottom: phage biology research at Genzyme in Cambridge

The next generation

Redefining the mobile phone interface with WACOM Components

With the arrival on the shelves of its cordless pen technology for the next generation of smartphones less than a year away, WACOM Components Europe Ltd is helping to shape the way we'll use our mobiles in the very near future. Catalyst talked to Product Marketing Manager Neil Ferguson to see what lies ahead.

Once you know that WACOM is a name derived from a combination of the Japanese word 'wa' (meaning harmony) and 'com' (short for computer), it seems fitting that this company's simply stated mission is 'to create a natural innovative interface between computers and users'. And as the UK subsidiary of the global market leaders in the design and manufacture of graphics tablets and pen-based interface systems, WACOM Components is poised to make a major impact in an exciting new market sector, as Ferguson explains.

"We established WACOM Components Europe in Cambridge three years ago now. Having identified that there was a specific need for a more user-friendly interface for smart handheld devices such as smartphones and PDAs, it made business sense to be located at the global hub of mobile phone design: Europe.

"We've worked very hard since starting here in partnership with some of the world's top-tier mobile phone manufacturers and have now arrived at a point where our scaled-down chip technology is available as a commercial product."

Of course, it was only natural that when mobile manufacturers were looking to assess the feasibility of a pen-based interface system for use with a phone, they turned to WACOM first. The Japanese company founded in 1983 has sold nearly two million pen tablets, close to ten million individual sensors and its technology is used in virtually all of the tablet PCs produced by major computer manufacturers.

"There's a rapid change in the mobile landscape going on at the moment"

"Our technology brand is called 'Penabled'," explains Ferguson, "and there are many benefits over the incumbent resistive technology which make it a very natural interface. For example, our system uses a cordless and battery-free pen – there are a lot of other products with a battery in the pen, which leads to maintenance issues and pen-design constraints.

"The technology is based on an inductive rather than a resistive-touch technology, which is what the majority of other pen-based interface solutions use. The problem with resistive technology is that you have to lay your sensing

Left: impression of a next generation smartphone
Below: WACOM technology at work in a medical application

technology on top of the display for it to function. Because of this, you reduce some of the light transmission and get brown colour wash; it's also very fragile because you can't put a protective cover over it.

"With a Penabled solution, the sensing technology actually sits behind the display so you don't lose any light transmission. In fact, you don't even have to touch the screen with the pen to activate it – it works within 14mm and we call this our 'Flight Point' feature. This also means you can have a protective cover, which greatly reduces the scrap rate."

All these factors have been major advantages in the adaptation of WACOM's pen-based system for the mobile phone market. With the first product due to enter the market in 2005 and their new phone-based chip recently launched on 27th September 2004, it's been a busy time for the team of six at WACOM Components Europe, who benefit from administrative support from the European Headquarters for WACOM in Germany.

"The mobile phone market is growing once again," continues Ferguson. "It had been in stagnation for a couple of years: half a billion units were shifted in 2003, but this year the projection is 627 million units. People are moving towards an all-in-one device – the 'Swiss-army knife of the mobile phone' if you like, because it's got video, calendars, voice, eventually it will have a digital signature on there, hotspots for your wireless connection and stuff like that. We're working to make our pen-based interface a natural part of this new generation of phones.

"With the ongoing miniaturisation of phones and an increasing number of applications available, this presents new challenges for those involved in interface design. Most importantly for us, there's a navigation challenge – 85% of users are finding the menus too complicated to use. So we've been looking at how to make the most intuitive pen-based system for use on something as small as a mobile phone."

With WACOM Components Europe having recently been classed as the smartphone competence centre for WACOM worldwide, Ferguson is justly proud of the progress the team has made.

"We're looking to design the most intuitive pen-based interface system for use on something as small as a mobile phone"

"It comes as a nice bit of respect for us that we've been seen to be doing the right thing. Our role is changing slightly because we have the experience now of dealing with mobile phone manufacturers, so we're also assisting WACOM in the US, Japan and China on how to deliver this message to the market – we're about a year ahead of everybody else."

Nevertheless, with the move onto Cambridge Science Park only recently completed in July 2004, there seems little time for Ferguson and colleagues to rest on their laurels.

"The move to Cambridge Science Park reflects where we want to be in terms of our culture and the image we want to present to the world. It says to the major manufacturers that we're a company to be taken seriously.

"It also gives us space to grow, which is definitely part of our short-term plans. With products going to market, we'll need to support our customers and we'll need channels to sell the technology in Europe to new manufacturers.

"There's a rapid change in the mobile landscape going on at the moment and we've got to be prepared for it. The interface is probably one of the most important areas and if there's a simple intuitive system in place, then it's fully primed for the next generation."

www.wacom-components.com

Close affinities

Purely Proteins develops a new approach to biotech services

A young and dynamic company focused on the production of human proteins for drug profiling, selectivity screening and therapeutic targeting, Purely Proteins is already making a significant impact in a competitive worldwide market. Catalyst spoke to co-founder and Chief Executive Officer Dr David Bailey to find out how.

With the recent completion of a second round of funding bringing total investment in the company to £3 million, and the imminent closure of a number of commercial deals, Dr David Bailey has good reason to feel encouraged by the progress of the company he founded two years ago with a former colleague from his days working for pharmaceutical giant Pfizer.

"The company was founded in 2002 by David Parry-Smith and myself to exploit both informatics and drug discovery within the proteomics sector," explains Dr Bailey. "We worked closely with Professor Christopher Lowe and Dr Geeta Gupta at the Institute of Biotechnology at the University of Cambridge to develop of platform of technologies to underpin the company as it was established."

Purely Proteins uses both affinity purification technologies and proprietary computational approaches to identify novel discovery targets and their corresponding chemical ligands. It's an integrated approach that is already achieving considerable success, as Dr Bailey goes on to point out.

"There's a local pool of talent and potential clients and technologies which we're participating in by being located here"

"Our services are powerful: we're using affinity approaches to commercialise a design process which has evolved over a considerable number of years, both in the drug discovery industry and also within the biotechnology sector. Our technology is based on chemical ligand design pioneered by Chris Lowe – now a member of our Scientific Advisory Board – at the Institute of Biotechnology in Cambridge, linked to traditional medicinal chemistry approaches utilised by established drug discovery companies such as Pfizer."

Initially based at the Cambridge Enterprise Centre on Cambridge University's West Site, Purely Proteins relocated to Cambridge Science Park after six months – a move which certainly has helped the young company grow in stature according to Dr Bailey.

"Being on the Park adds considerably to the value proposition of the company, both by having a number of potential collaborators nearby and also providing a centre of gravity for visits by major pharmaceutical companies.

"This works in practice. We are currently collaborating with Abcam and other Science Park companies. Our chairman is David Stone, also chairman of Biofocus, another company on the Park. There's a local pool of talent and potential clients and technologies which we're participating in by being located here."

As a founding member of two previous start-up companies in Cambridge – Incyte Pharmaceuticals and De Novo Pharmaceuticals – Dr Bailey is no stranger to the trials and tribulations involved in developing a new business. Nevertheless, establishing Purely Proteins has clearly presented a unique set of challenges.

"What's been different is that we started this as a revenue-generating company, creating a revenue-generating platform structured around web-based approaches as well as the more traditional partnership programmes with large pharmaceutical companies."

"Every indication we have suggests that there is a great commercial appetite for the work we're doing"

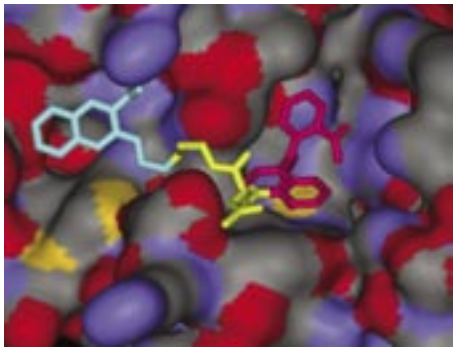
With a team of 12 employees to date, Dr Bailey hopes to build on the existing resources and develop new partnerships and revenue streams that will take the company to profitability within 18–24 months. And despite a somewhat depressed economic climate, he remains extremely positive about what lies ahead for Purely Proteins.

"It's been very challenging establishing a young business at a time like this, but every indication we have suggests that there is a great commercial appetite for the work and the science that is being done within the company. Judging by the deal flow that we see at the moment, the future for Purely Proteins looks very exciting indeed."

www.purelyproteins.com

Above: mapping proteins

Above: defining ligand binding sites



Above: developing proprietary ligands

Staying secure

A decade on CSP for Foursys

Above: the team at Foursys

The smallest company on Cambridge Science Park when it formed ten years ago, security software specialist Foursys has evolved with time to become one of the UK's leading suppliers in its field. Catalyst spoke to Managing Director Paul Prior about the transformation.

"We started almost exactly ten years ago more by accident than by anything else," explains Paul. "Four of us worked for a company based on the Science Park and it went into liquidation very suddenly – we decided to form a new company which basically looked after the old customers, so we started from scratch."

Taking their name from the number of founding members (of whom Paul Prior, Dave Barnes as Technical Director and Bev Stevens as Company Secretary still remain), the company began life in a proprietary marketplace but soon found that the ability to adapt would become a crucial feature of its long-term sustainability, as Paul relates.

"The whole company is driven by customer service"

"We knew the proprietary marketplace we were working in was going to cease to exist in a matter of years. So we decided to start selling Microsoft software, PCs, networking equipment and support services, which we did for about six years. But basically we were a very small fish in a very large pool.

"One of our customers discussed the area of security software with us, products like MAILsweeper for email protection and Sophos anti-virus, so we evolved again and moved into this field about four years ago – it's now replaced all other revenues we have. The company is now totally focused on anti-virus software, mail security and web-security solutions."

It has certainly been a successful shift in specialism: the company now has more than 700 security service customers, with a particular focus on the public sector and major corporates, and over 1.3 million licensed users in the UK of the products they have sold. It has also grown to employ 14 people, generate a revenue of £4 million per year and was recognised in 2004 by Sophos, Europe's largest producers of anti-virus software for use in network environments, as UK Partner of the Year for the third year running. Foursys is now the largest reseller in Europe for two of their suppliers (Sophos and Sybari) and among the top five in the UK for their three other main suppliers (Clearswift, SurfControl and Websense).

However, despite the changing nature of its business focus, Foursys has also benefited from the stability and reputation that their location on Cambridge Science Park has provided over the years.

"When you're selling to very large organisations, it's always been helpful to have the Science Park address," says Paul. "It says that this is a stable company and customers look on us as being a reputable organisation."

Providing specialist support services for all the products they supply, Paul is clear about what it is that has enabled them to forge a strong position in a competitive market area. "The whole company is driven by customer service – we have a very high customer-retention rate and over 95% of customers remain with us. It's also important to establish good working relationships with your suppliers – if you gain their respect, they'll actually help to introduce you to customers and provide advance information on their marketing plans and software roadmap."

"When you're selling to very large organisations, it's always been helpful to have the Science Park address"

Looking to grow the company to a potential total of 20 people and a £6 million turnover over the next few years, Paul sees the motivation and development of all the employees as a core focus of the Foursys management team.

"The most challenging part of our role is the people management aspect of it, making sure that the employees you have working for you feel challenged and enjoy the work they're doing. It's important that it's not just a nine-to-five job for them – it's something they actually want to come in and do – and that they can improve their skills by staying with us.

"Security software is a very specialised area and it's changing all the time. Our challenge as a company is to get a team of people working together effectively so that they can help each other out and deliver the level of service to our customers that they need and expect."

www.foursys.co.uk

The road to discovery

Wolfson Institute spin-out joins CSP

NCE Discovery is a young company set up to help drug-discovery companies get more value out of their programmes at an earlier stage in the process. Catalyst talked to founding member and Chief Operating Officer Dave Madge to find out more.

Having moved onto Cambridge Science Park in December 2003, the team at NCE Discovery are very much at home in the new state-of-the-art medicinal chemistry laboratories and adjoining office space they now occupy. But it was nearly ten years ago that the founders took the first steps in a journey which would ultimately lead to this exciting new phase in the development of a new company, as Dave explains.

"What makes us unique is the experience we have with very early-stage companies and the flexibility we can offer"

"The two scientific founders were myself and Dave Selwood – we both had a background in big pharmaceutical companies. In about 1995, we were getting a bit disheartened working in such organisations – we were spending less and less time initiating novel discovery projects.

"As a result, we decided to go into academia at University College London (UCL) and involve ourselves more closely with early-stage drug-discovery programmes – linking up with biologists in universities and building programmes around those targets that we thought medicinal chemistry could add value to.

"The key driver for us was the opportunity to create a chemistry group that specialised in providing support to early-stage biological research projects, identifying those that could ultimately result in the identification of new drugs, and then providing the medicinal chemistry support necessary to confirm this through the further development of the project.

"Our role was essentially to incubate the medicinal chemistry components of these projects within the University, supporting funding activities and growth through to the point where it was sensible and feasible to form an independent spin-out company.

"This model attracted some attention and we found ourselves being approached by groups outside UCL to offer a similar approach. Fortuitously, at around this time Chris Sharman came to see us with a similar idea and we decided to join forces."

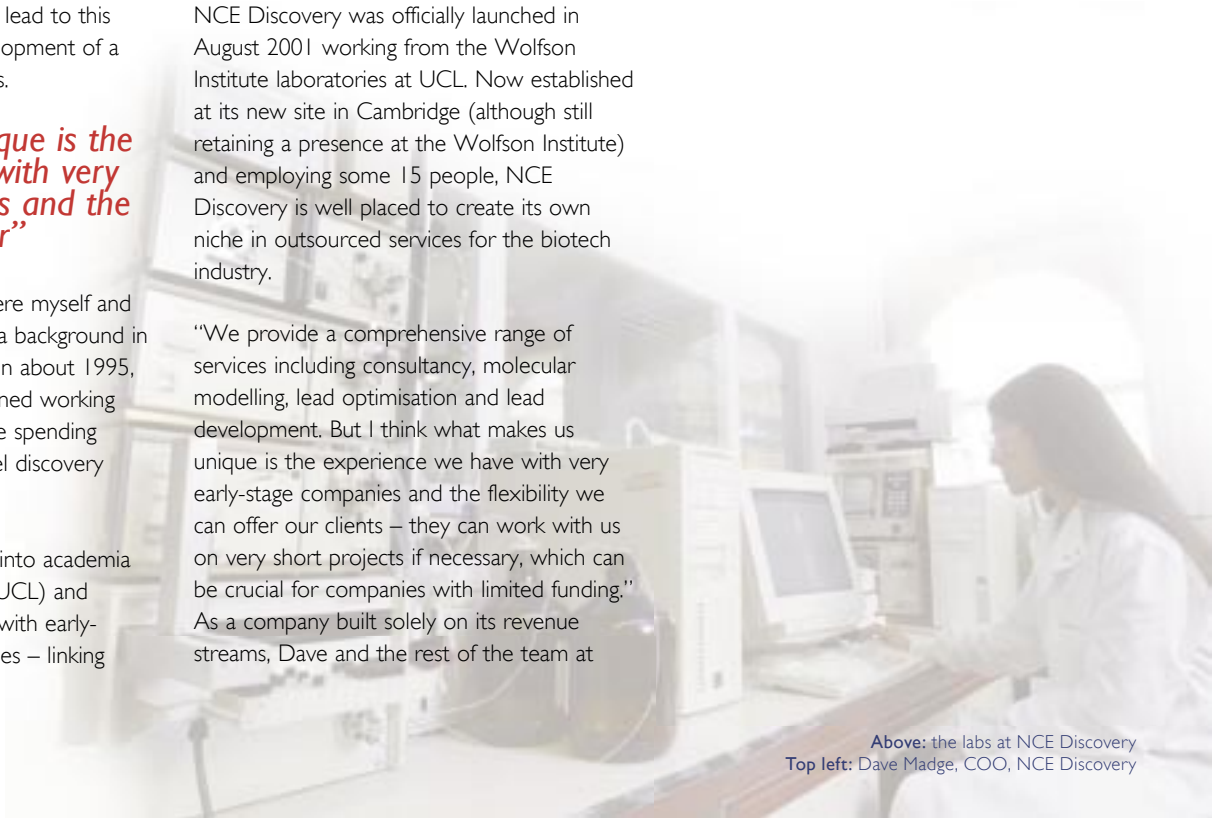
NCE Discovery was officially launched in August 2001 working from the Wolfson Institute laboratories at UCL. Now established at its new site in Cambridge (although still retaining a presence at the Wolfson Institute) and employing some 15 people, NCE Discovery is well placed to create its own niche in outsourced services for the biotech industry.

"We provide a comprehensive range of services including consultancy, molecular modelling, lead optimisation and lead development. But I think what makes us unique is the experience we have with very early-stage companies and the flexibility we can offer our clients – they can work with us on very short projects if necessary, which can be crucial for companies with limited funding." As a company built solely on its revenue streams, Dave and the rest of the team at NCE Discovery have had their own particular challenges in order to achieve success. "It's quite different managing a contract research business that's not funded by venture capital. We have very little flexibility in our financing – it means we're very focused on business development and securing our next contracts." As such, the move to Cambridge Science Park has been an important step for NCE Discovery, as Dave goes on to explain.

"Our location is a useful tool in terms of the cluster that already exists here"

"We tend to work very closely with our clients, so our location is a useful tool in terms of the cluster that already exists here and the quality of the facilities we can offer." And with the foundations in place, Dave looks forward to the ongoing development of a company which already seems to have hit the ground running. "Over the next year, the emphasis is on filling up our laboratory space, getting a significant amount of new business in and expanding our client base."

www.ncediscovery.com



Above: the labs at NCE Discovery
Top left: Dave Madge, COO, NCE Discovery

The reverse lightbulb

A bright future for CSP solar power start-up

Formed by graduate students after winning the annual Cambridge University Business Plan Competition, Enecsys is an exciting new start-up looking to increase the accessibility of solar power to business and domestic users alike. Catalyst met founders Asim Mumtaz and Lesley Chisenga to find out how.

"Our technology is based around what we've called the reverse lightbulb concept," says Asim, a former PhD student at the Electronics, Power and Energy Conversion group at the University of Cambridge Engineering Department, now working full time on the company he helped to found.

"The traditional model of interacting with the grid is one of taking energy from it – you plug in your lightbulb and it uses electricity from the mains to produce light. Our model is the opposite: you can plug in one of our solar modules straight into your mains and it will feed back energy so as to reduce your bill – alternatively you can use it locally as a separate energy source."

This beautifully simple concept has nevertheless necessitated a significant amount of research to help turn what seems like a straightforward idea into a practical and commercially viable reality, as Senior Research Engineer Lesley Chisenga points out.

"Ours is the opposite of the traditional model of interacting with the grid"

"The technology for solar modules has existed for more than 50 years," he explains, "but the problem is that the power conversion technology has lagged behind the advances in this area. The focus has been on the energy source and not how to make it easier for people to actually use it.

"That's why ours is an enabling technology – we're focused on how the power derived from solar cells is transferred to the normal mains system in a building. It's based on semiconductor technology, and this allows us to offer enhanced reliability, reduced costs and also scalability – you can start with a small installation and keep on increasing the capacity of that as and when you decide to."

The journey from the drawing board to the boardroom has certainly been a swift one for the team of five who are aided by a number of mentors and consultants. Submitting an initial abstract to the Cambridge University £50K Business Plan competition for 2003, the entrants were somewhat surprised to end up as eventual winners.

"We both really planned to look for jobs after we finished our studies here," admits Lesley, "but after understanding the commercial significance of our work and winning the prize, we made a decision to 'make it happen' by forming Enecsys. We believed that we should use the knowledge and ideas we had developed while studying in a practical context rather than just keeping them confined to our theses."

Formally incorporating the company in July 2003, the team soon secured further funding in the form of a Pathfinder Award from the University of Cambridge Challenge Fund and an R&D award from the Department of Trade and Industry in January 2004. The move onto Cambridge Science Park in early October is the latest step in the development of a company which hopes to introduce the first of a wide range of products onto the market some time in 2006.

"There's still a lot of work to do before that," continues Lesley. "We're building our IP portfolio, consolidating our research, looking at other possible products in terms of technical developments and working on our marketing strategy."

Nevertheless, with spiralling oil prices and increasing concerns over the long-term effect of greenhouse gases, Asim sees the market as primed for solutions that challenge traditional energy consumption models.

"In Europe, Japan and the US there's a big pressure for businesses and domestic users to use renewable energy sources, and there are a lot of incentives for them to do so," he says. "We're just trying to make that step easier and more accessible.

"But it's not just in Europe and America and in terms of greenhouse gases that this kind of technology might be important. There are 400 million homes around the world without any electricity, particularly in rural Asia and Africa. It's in areas such as these that this kind of user-driven approach could also have a really huge impact."

www.enecsys.com

Above: the Enecsys team with Dr Fairbrother (centre), Senior Bursar, Trinity College & Director, Cambridge Science Park, outside their new facilities

PARK

CSR's Bluetooth hits the 50 million mark

Cambridge Silicon Radio (CSR), the single-chip wireless systems company with headquarters on Cambridge Science Park, announced that it had shipped 50 million of its Bluetooth chips since its first commercial delivery in May 2000.

John Hodgson, Chief Executive Officer at CSR, commented: "It is interesting to see the spread of devices that now incorporate Bluetooth technology: from top-of-the-range cars, right across to mainstream electronics devices."

"CSR's landmark 50 million shipment figure is indicative of the growing infusion of Bluetooth technology in consumer electronics, including mobile handsets, PDAs and laptop computers," he continued.

According to IMS Research, over three million Bluetooth devices are currently shipping each week. Today, CSR has a silicon volume share of 42 % with share of end-product design wins exceeding 60 %.

www.csr.com

Above: CSR's BlueCore technology in latest headset from JABRA

CSP companies collaborate on innovative cancer technology

Science Park neighbours TeraView Ltd and Cambridge Consultants Ltd are working together with medical specialists at Addenbrooke's Hospital, Cambridge, to develop the best market entry for TeraView's advanced imaging technology for breast cancer.

TeraView, the world's first company focused solely on the exploitation of Terahertz radiation, has developed a technology which can help to improve detection rates of unhealthy tissue during breast cancer surgery, leading to a decrease in repeat surgery and potentially improved recovery rates.

www.teraview.co.uk
www.cambridgeconsultants.com

Above: breast cancer imaging technology as developed by TeraView

Mobile library service to continue

The mobile library service will continue visiting Cambridge Science Park after the success of an initial six-month trial period earlier this year.

The Learning Vehicle operated by Cambridgeshire Libraries visits the Park between 12.15pm and 1.45pm on the first and third Wednesday of every month and can be found beside the Q.ton Centre.

The service is free to join and use and offers a wide selection of books, videos, spoken word cassettes and DVDs (charges apply for some items). Forthcoming dates are: 20th October; 3rd and 17th November; 1st and 15th December; 5th and 19th January; 2nd and 16th February; 2nd and 16th March. For further information visit www.cambridgeshire.gov.uk/library or call 08450 455225.

LIFE

Intellectual property clinics for CSP companies

Following the success of a pilot scheme, patent and trademark attorneys Hepworth Lawrence Bryer & Bizley are running a free weekly intellectual property clinic at their Cambridge offices at 303 Cambridge Science Park.

A senior patent attorney is available to answer questions and give basic advice about patents, trademarks, design and copyright issues including, where possible, an idea of the likely costs involved, should the enquirer wish to take things further.

Right: Chris Hirsz, senior patent attorney at Hepworth Lawrence Bryer & Bizley

The clinic takes place from 2pm until 5pm every Wednesday; visitors can just drop in or book an appointment by calling Chris Hirsz, the senior patent attorney who normally runs the clinic, on 01223 225300.

www.hlbb.com

CSP nursery part of UK's largest nursery group

Kidsunlimited, provider of Cambridge Science Park's on-site nursery and one of the country's largest pre-school childcare specialists, has merged with Asquith Nurseries to form the UK's largest nursery group.

The new organisation, Nursery Years Group, will operate a total of 145 nurseries and crèches around the UK.

But for parents and children it will be business as usual as the new group's CEO Philip Rhodes confirms: "The nursery names won't change nor will there be any changes in our staff. Neither the children nor their parents will be aware of any immediate differences. However, this merger will give us even more opportunity to enhance children's nursery experience."

www.kidsunlimited.co.uk

Right: CEO Phil Rhodes and COO Chris Winstanley of Nursery Years Group with two young learners

Bike security coding for Park cyclists

Cyclists were able to take advantage of a security coding session which took place on Cambridge Science Park on Thursday 16th September.

Police Community Support Officer Sara Rose of the East Chesterton Community Policing Team was on hand to encode cycles which were then added to the national cycle database, assisting with the recovery of lost or stolen bikes. The event was well attended and employees from more than 20 Science Park companies took part.

Right: bike coding at CSP

Events what's on and where...

Cambridge AWiSE/WiSETI Joan Mason Memorial Meeting

Enriching Science and Engineering: Exploring the Business Case for Gender Diversity
Thursday 11th November 2004
6.30pm–9.30pm
Keynes Hall, King's College, Cambridge.

This meeting is about exploring and critically analysing the business case for promoting activities and initiatives that help to recruit and retain women in the high-technology workforce around Cambridge. Speakers will be:
Dr Gill Samuels, a Senior Director of Pfizer;
Dr Jenny Holmes, Diversity Director, Global Research and Development, AstraZeneca;
and Bill Bonfield, Professor of Medical Materials, University of Cambridge.

Cambridge AWiSE will present a summary of their report *Women's Experiences of Part Time and Flexible Working*.

Anne Campbell, MP for Cambridge, will give a response from a parliamentary perspective. WiSETI is sponsoring this conference with the financial support of Schlumberger, and Dame Judith Mayhew Jonas, Provost of King's College, will host a reception afterwards.

The meeting is in memory of Dr Joan Mason, the founding Chair of AWiSE, who died earlier this year. Joan was an enthusiastic and tireless supporter of the inclusion of women in science and engineering and cared deeply that women should be able to pursue the excitement of a career in science and engineering despite many factors that might hold them back.

If you would like to receive an invitation to this meeting, please email Dr Jenny Koenig, Chair of Cambridge AWiSE at jk111@cam.ac.uk

Great Eastern Investment Forum (GEIF)

Investment Day
Thursday 2nd December 2004
Q.ton Forum

Investment Days provide an opportunity for up to eight companies to present their business opportunities to GEIF business angels, and are open to both existing GEIF members and non-members (on a once-only basis) considering angel investment, or investing through GEIF, for the first time.

Email: geif@nwbrown.co.uk
Web: www.geif.co.uk
Phone 01223 357131 / 467296

Cambridge AWiSE (Association for Women in Science and Engineering)

Cambridge AWiSE (Association for Women in Science and Engineering) are holding a series of lunchtime meetings on the Cambridge Science Park with the theme of Women Entrepreneurs. Lunch will be provided and there will be plenty of time for networking and discussion. All are welcome; please respond to e.westwick@astex-technology.com if you would like to attend.

The meetings are held at the Royal Society of Chemistry, Cambridge Science Park www.cambridge-science-park.co.uk/siteplan.php (building 290) from 12.30 to 1.30pm; a sandwich lunch will be provided (£2 payable on the door).

Dates for other meetings in the series are listed below; the AWiSE website www.awise.org will be kept up to date as speakers are arranged.

Thursday 9th December t.b.a.

Tuesday 8th February Dr Ann Hayes (independent consultant, founder and non-executive Director of Ionix Pharmaceutical)

Thursday 7th April t.b.a.

Entrepreneurs Club

Wednesday 24th November 2004, 6pm
Q.ton Forum

Be prepared for the offer to buy your business
Successful companies concentrating on the growth path are often taken by surprise when an offer for the company is received. By preparing contingency plans well in advance the maximum value can be extracted from a sale, or an appropriate defensive strategy to the bid implemented.

This meeting will outline the steps you should take to achieve the best results for you and your business.

Entry is free; to register places at this event please email tanya.jack@kbpb.co.uk or phone Tanya on 0207 475 2684.

www.the-entrepreneurs-club.com

Cambridge Science Park Children in Need Fun Run

Friday 19th November 2004, 11.55am
Relay race (for the speedy, slow, fancy-dressed and well-sponsored!). Four people in each team. Each person runs one lap of the Cambridge Science Park (1.1 miles).

For an entry pack email:
FunRun@CambridgeConsultants.com
or phone 01223 392370

Further information go to:
www.CambridgeConsultants.com/FunRun
or ww.bbc.co.uk/cin

Free intellectual property clinics

Patent and trademark attorneys Hepworth Lawrence Bryer & Bizley are running a free weekly intellectual property clinic at their Cambridge offices every Wednesday from 2pm to 5pm. Visitors can either telephone for an appointment or just drop in.

303 Cambridge Science Park
Cambridge CB4 0WG
Tel: 01223 225300
Email: cambridge@hlbb.com

PARKLIFE connections

The Science Park HR Group, a support network for HR managers/representatives, provides a forum for sharing of common issues/problems, discussion of best practice, updates on legislation, and the opportunity to offer support to each other in what can often be a solitary role. We meet every other month over lunch.
Contact: Wendy Hepburn
Email: whepburn@xaar.co.uk

The Facilities Managers' Forum is an opportunity for representatives from CSP companies to meet once a month over lunch to share experiences, facilitate networking and discuss issues of common interest in this field.
Contact: Andrew Taylor
Tel: 01223 702500
Email: facility.forum@ntlworld.com

Biology in Business (BiB) is a Park- and University-wide organisation focusing on career development and the exploitation of novel technologies applicable to the life sciences. BiB organises formal and informal events, including the region's only careers fair for life scientists (CoiLS).
Contact: Sanjay Tickoo
Email: info@biologyinbusiness.org

The 4Bio Network is an informal network focused on commercial management issues for Cambridge Science Park companies involved in the biotechnology, pharmaceuticals and life-science sectors. Meetings take place every two months, usually on the first Wednesday of the relevant month at 5pm at the Q.ton forum.
Contact: Charles Bailey, Nigel Low, Karen Thomas
Email:
nlow@ionixpharma.com
charles.bailey@mundipharma.co.uk
karen.thomas@amedis-pharma.com

The European Chapter of the Lab Robotics Interest Group is a forum for the exchange of ideas on robotics and programmable automation in the field of high-throughput screening, assay development, proteomics, genomics and general lab automation. Regular meetings bring together scientists, engineers, users and vendors of equipment and instruments.
Web: www.lab-robotics.org

ERBI – The Biotechnology Industry Group for Cambridge and the East of England offers members substantial discounts on supplies through its Purchasing Consortium. Membership also gives access to ERBI's special interest groups that include human resources, finance and business development.
Contact: Jeanette Walker
Email: jeanettewalker@erbi.co.uk.

Enterprise Link, a Business Link service for Cambridgeshire, is a membership network providing advice and support for early-stage, entrepreneurial/aspirational businesses. It holds a variety of networking events and seminars at the St John's Innovation Centre in Cambridge, and also sends out regular bulletins to members with information, advice and opportunities. It can also arrange access to sector specialists.
Web: www.enterprise-link.co.uk

The Entrepreneurs Club helps like-minded people and companies share ideas, network and discover opportunities through regular meetings at Cambridge Science Park, as well as providing guest speakers and discussions on topics chosen by members. The Cambridge Club is part of a wider network established by Kleinwort Benson Private Bank.
Contact: Derek Wright or Tanya Jack
Tel: 020 7475 5476 or 020 7475 2684
Email: derek.wright@kbpb.co.uk, tanya.jack@kbpb.co.uk
Web: www.the-entrepreneurs-club.com

The Cambridge Science Park is managed by Bidwells on behalf of Trinity College.

Catalyst is a forum for companies on the Cambridge Science Park. The next issue will be published in Spring 2005. If you have any comments or suggestions for stories to be included in the next issue, please get in touch with Tracey Poole (see right).

www.cambridgesciencepark.co.uk

Management issues:

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PR & marketing issues:

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Tel: +44 (0) 1223 559331

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Viewpoint

Tom Salusbury, Head of Biotechnology & Pharmaceuticals Team, UK Trade & Investment

UK TRADE & INVESTMENT

www.uktradeinvest.gov.uk

UK Trade & Investment is the lead Government organisation created to support companies in the UK trading internationally, and overseas businesses seeking to set up or expand in the UK. As Head of the Biotechnology & Pharmaceuticals Team, I'm personally very excited to be working to support a sector in which Britain is internationally renowned and Cambridge in particular is recognised as a centre of excellence.

We're looking to build on the major successes already achieved in this field, and its importance to the UK economy cannot be overstated. Fifteen of the world's 75 top-selling medicines were discovered in the UK; only the US accounts for a higher share. There are around 480 specialist bioscience companies across the country, employing some 24,000 people. And it's a highly productive sector: the UK has nearly twice as many products in clinical trials as its nearest European competitor.

Cambridge has always been at the forefront of this success story, from the discovery of the double helix structure of DNA more than 50 years ago to the dynamic biotech cluster development which can be seen so clearly at sites such as Cambridge Science Park today. Undoubtedly, the excellence of research at the University of Cambridge has provided the foundations for such cluster development, and continues to offer easy access for local companies to a wealth of world-class talent.

Strong links between university research departments and industry have been furthered by successful Government support initiatives, helping both large and small companies to access and exploit leading edge research. Via the DTI science budget, the Government is committed to increasing spending on science and research to US$3.77 billion a year by 2005/06 – an average increase of 10 % per annum in real terms. This support framework is invaluable in encouraging both the development of home-grown companies as well as major global players looking to invest or set up in the UK.

It's in this context that my specialist Biotechnology & Pharmaceuticals Team has been created to assist companies in international trade, investment and partnering activities. We're based in London and Cambridge, a recognition of the importance of this city and its surrounding region on both a national and international scale. I am based in Cambridge where UK Trade & Investment has a team working alongside biotechnology companies in this cluster.

We use our network of contacts to provide specialist intelligence to companies, offering targeted market reports and helping to arrange visits to overseas markets and introductions to overseas organisations. Given the nature of the sector (with most companies not in a position to export products), much of the focus of the team's activities is on partnering.

We've established strong relationships with local biotechnology networks such as ERBI and work closely with them and support their delivery of services to companies in this sector. Additionally, many of the services we are able to offer companies are commissioned through such networks, with us continuously establishing strong communication channels which help us share the wealth of knowledge and expertise available both in this region and across the country.
Initially, we have developed a strategy to concentrate on a few priority markets. These are the USA, Canada, France, Germany, Switzerland, the Nordic countries, Australasia and Japan. Nevertheless, this does not exclude a large number of non-priority markets where tactical, timely initiatives are also very worthwhile.

Over the coming months, I'm looking forward to getting to know many of the new and well-established biotech and pharmaceutical companies based on Cambridge Science Park; we want to find out more about how we as a team can help support your objectives. I believe that by working together we can help realise further the huge potential that this market sector holds for this country, and continue to promote UK excellence in biotechnology and pharmaceuticals around the world.

www.uktradeinvest.gov.uk

Above: Tom Salusbury (third from left) with the team at UKTI