

retort

THE NEWSLETTER OF THE OXFORD SCIENCE PARK

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Oxford attracts the brightest students, researchers and staff from around the world

Editorial

The Oxford Science Park sits at the centre of a bioscience cluster of national and, increasingly international importance and this is reflected in the percentage of companies on the Park who operate in this sector.

Many of these companies have chosen the Park because this University city continues to attract and encourage the brightest students, researchers and staff from around the world, providing a pool of talent for expanding companies in the area.

By Summer 2002, over 140,000 ft² of new construction will have been completed at the Park providing much needed additional space for existing and new companies and including a purpose-built nursery for the younger faces at the Park.

The Science Park Joint Venture between Magdalen College, Oxford and The Prudential Assurance Company Limited seeks to provide a harmonious and stimulating environment for all companies who choose to make the Science Park their home. We look forward to welcoming further companies into the new buildings.

Survey reflects bioscience growth



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Since the last issue of *retort*, a number of new companies have moved onto the Science Park. These include Angiogene Pharmaceuticals, Charterhouse Therapeutics, Commerce Decisions, Computer FM, Protomix, Physiomics, Vecta, Virtium Technology and Zipcom.

The industry sectors represented in the Park make up and covers the bioscience, telecommunications and computer industries. In a recent survey, it was shown that 50% of Oxford

Science Park companies operate in the biosciences, 42% in software or telecommunications and 8% in 'other' industry sectors. The survey also revealed that over 20% of the companies are from outside the UK with representatives from Denmark, France, Japan, Korea, New Zealand and the USA.

Details of companies at the Park may be viewed on the Science Park web site at www.oxfordsp.com/companies-listings.html.

Oxford – leader in world-class research

Oxford University has more academic staff working in world class research than any other UK university according to the 2001 Research Assessment Exercise.

The assessment, which was carried out by the Higher Education Funding Council, reviewed research work in over 3000 university departments throughout the United Kingdom. Grades were awarded according to the quality of each department's work with a 5 and 5* being the top rankings and indicating research work of international standing

The published results revealed that Oxford has 1930 academic staff at the university whose

research departments were given the 5 or 5* award.

Science departments receiving the 5 or 5* rating included pharmacology, chemistry, biochemistry, anatomy, physiology, zoology, pathology, clinical laboratory sciences, hospital based clinical subjects, physics, engineering, materials, earth sciences, pure mathematics, applied mathematics, statistics and computer science.

The results of the assessment will be used to help decide how the government's research funding budget should be allocated over the next five years. Full information on the Research Assessment Exercise can be found at www.rae.ac.uk.



Dr Peter Davis
Chief Executive,
Angiogene Pharmaceuticals

Magdalen Centre company Angiogene Pharmaceuticals is a drug discovery company targeting diseases involving active angiogenesis (see below). The company was formed in 1993 and has a major focus on the generation of innovative anticancer agents.

Angiogene develops compounds to the pre-

clinical stage then licenses them to major pharmaceutical companies for further development and eventual marketing. A number of drug candidates are in the pipeline and the furthest advanced compound, ZD6126, has been licensed to AstraZeneca. This compound, a small-molecule 'vascular targeting agent' for the treatment of solid tumours, has already shown encouraging results in clinical trials. The company is now working on a second generation of vascular targeting agents. These new compounds have shown activity in tumours resistant to first generation agents.

Chief Executive Dr Peter Davis commented "Angiogene contracts out research to centres of excellence around the world, so the Science Park was a natural choice for us. The internationally recognised biotech cluster and the central UK location were important factors in our decision to locate here".

Molecular Medicine

The company's Molecular Medicine Research Programme has produced a number of 'synthetic' genes that may prove useful in the treatment of angiogenic diseases. Tumour angiogenesis is driven by the interaction of tumour-derived soluble mediators or growth factors with receptors expressed on the surface of the endothelial cells that line tumour-associated blood vessels.

Angiogene has constructed a family of genes that encode the extracellular component of these important growth factor receptors but in which the intracellular signal-transducing domain is replaced with an intracellular domain derived from a 'death receptor' such as Fas. Cells expressing the corresponding chimeric protein are thus induced to die, rather than proliferate, when exposed to the growth factor. This concept can be applied widely to any situation in which it is desirable to selectively kill target cells in response to differentially expressed microenvironmental signals. Angiogene's focus, however, is directed toward the delivery of these genes to proliferating endothelium, with the objective of selectively destroying vasculature within tumours and at other sites of active angiogenesis.

Dr Davis adds "Unlike many gene-therapy approaches, Angiogene's strategy does not require sustained protein production. Targeting endothelium in this way is also advantageous since the gene delivery vector used does not need to penetrate into tissue as the target cells are in direct contact with the bloodstream.

Furthermore, as the destruction of only a few endothelial cells can significantly compromise vascular integrity, it is likely that the limited efficiency of in vivo gene transfer that has dogged tumour cell directed gene-therapy strategies, will not prove problematic in this context. Angiogene is hoping to work with gene-delivery companies to advance this technology into the clinic".



Destruction of the centre of a tumour by one of Angiogene's vascular targeting agents

Angiogenesis and Vascular Targeting

Angiogenesis – the growth of new blood vessels – is an important natural process in embryonic development, wound healing and the female reproductive cycle but otherwise occurs only at very low levels in adults. Some diseases, however, are characterised by active angiogenesis. For example, for a solid tumour to grow, it has to establish its own blood supply, which it does by angiogenesis. Also several diseases of the eye, including diabetic retinopathy and macular degeneration involve angiogenesis and this process may also contribute to the pathology of diseases such as psoriasis and rheumatoid arthritis. The new vessels formed in these diseases are different from those of the normal vasculature and Angiogene's strategy is to target this 'neovasculature' for destruction. In the case of solid tumours, this rapid destruction of supporting blood vessels leads to widespread tumour death, particularly in the central regions. This ability to kill the centre of the tumour is particularly important since this is the area in which conventional therapy (radiotherapy and chemotherapy) is often ineffective.



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Updated Masterplan

A new representation of the Masterplan has been designed for the Park showing the locations of existing buildings and plots available for development. The main infrastructure work on Phase 2 of the Park has now been completed and this includes

- the creation of building platforms and road infrastructure allowing new buildings to be rapidly designed and constructed for companies
- the construction of five new lakes and the planting of belts of woodland and thicket
- the construction of a bridge across Littlemore Brook giving road access to the new extension of the Magdalen Centre.



The updated Masterplan shows the existing buildings, buildings currently under construction and the remaining plots available. The size of the remaining plots may be adjusted and plots may be combined for larger requirements. Details of the remaining plot sizes are shown on the attached fax reply form.

When the current construction work is completed in summer 2002, there will be eight building plots available, each benefitting from the distinct character that has been created at the Park.

An interactive version of the Masterplan may be viewed on the Science Park web site at www.oxfordsp.com.



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New buildings for the Park

There are four new buildings currently under construction at the Park, the extension to the Magdalen Centre (see details on page 7) with the new nursery alongside and also the Danby and Sherard buildings that will add a dramatic impact to the Park skyline.

Occupying sites overlooking the new Phase 2 development, Danby and Sherard will provide extensive air-conditioned accommodation in imaginatively designed buildings surrounded by landscaped grounds and a total of 375 parking places. The buildings can be let individually or as a complex with a total floor area of 82,583 ft² (7672 m²). Both buildings benefit from open B1 planning use and are due for completion in summer 2002.

The Danby Building

Located beside one of the new lakes on The Oxford Science Park, the Danby Building promises to be a highly attractive location for office accommodation on the outskirts of Oxford. Once complete, there will be 55,382 ft² (5145 m²) of offices and 249 car parking spaces.

The building comprises two wings – one on three floors, the other on four – with extensive glazing and a reception area boasting an impressive four-storey atrium. Air conditioning will ensure comfort levels for all occupants.

An eminent Oxford University botanist – the Earl of Danby – is commemorated by this building. He founded the Oxford University Physic Garden in 1621 with a collection of medicinal herbs and this later became the University Botanic Garden housing the most compact yet diverse collection of plants in the world.



The Sherard Building

The Sherard Building is adjacent to the Danby Building and about half its size. There will be four floors of offices and an attractive double height atrium to the reception area. The Sherard Building will be comfort cooled throughout and will have extensive glazing to let in maximum light. There will be 126 car parking spaces.

William Sherard – another Oxford University botanist – lived between 1659 and 1728 and endowed the Chair of Botany at the University. The departmental library houses his collection of botanical works, which have contributed greatly to our modern day understanding of plants and herbs.



Indicative building details

The Danby Building
 55,382 ft² (5145 m²) net
 3 & 4 storey combined
 Air conditioned
 Raised access floors
 249 car parking spaces

The Sherard Building
 25,201 ft² (2527 m²) net
 4 storey
 Air conditioned
 Raised access floors
 126 car parking spaces

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New CEO for 'cyclopentenone technology' company

A recent arrival in the Magdalen Centre, Charterhouse Therapeutics, has announced the appointment of Dr Ursula Ney as its Chief Executive Officer. Dr Ney comes to the company after holding the post of Director of Development at Celltech since 1993.

The company is working on novel treatments for a broad range of diseases, including the viral infections responsible for herpes, AIDS and flu, and is due to start clinical trials on its first compound in 2003. It plans to overcome problems experienced with existing anti-viral drugs which, because they are targeted on a specific virus, become ineffective when mutations occur.

This new approach depends on the anti-viral properties of compounds which, rather than being directed at the virus, arm the cell itself against viral incursion. This avoids the problems of viral resistance and is expected to allow the drug to combat a range of viruses instead of one.

Cyclopentenone compounds work in two ways – they increase the heat shock response that sparks the production of protective chemicals in the cell and, at the same time, they shut down the genetic switch which causes inflammation, often the worst aspect of a viral infection. Although work on the development of these compounds is still at an early stage, this novel approach to drug discovery is expected to open up the way for exciting new developments in multiple areas including anti-viral, anti-inflammatory and anti-cancer drugs.



Dr Ney, CEO at
Charterhouse Therapeutics



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Further investment for breast cancer treatment

Sterix Ltd, a biopharmaceutical company based at the Park since 1998, has recently raised £8 million of finance towards its work in designing and developing drugs based on the action of steroids. The money will be used to expand existing research and development programmes and to take Sterix's second product – Oncomate – into clinical development for the treatment of breast cancer.

The company was formed in 1998 to advance research from two leading academic groups – a steroid biology research group at St Mary's Hospital, London (Imperial College School of Medicine) headed by Professor Mike Reed and a medicinal chemistry group at the University of Bath led by Professor Barry Potter. It has expanded into laboratories in the Magdalen Centre, supplementing its continuing research efforts at both Bath and St Mary's.

Commenting on the investment, the Executive Chairman of Sterix, Dr Peter Johnson, said "We are very pleased to have received a substantial investment from four leading venture capitalists.

It is a clear endorsement not only of the progress we have made at Sterix but also of the quality of our science and drug development programmes." The four venture capital companies involved in the investment are Avlar BioVentures, 3i, Johnson & Johnson Development Corporation and Quester Capital Management.

Sterix's lead product, Oestramate, completed Phase 1 clinical studies in 2001 and is the first synthetic hepatic-sparing oestrogen derivative to enter clinical development.



Oestramate; the first hepatic-sparing oestrogen developed
for hormone replacement therapy



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Largest Innovation Centre in Oxfordshire nears completion



Since the Magdalen Centre opened in August 1991, it has enjoyed great popularity and success. As the Innovation Centre of the Park, it has successfully nurtured start-up science and technology companies, many of which have since expanded into larger accommodation.

In March 2001, construction started on a 35,000 ft² (net) building behind the existing Centre to provide larger space for companies expanding from the Magdalen Centre and for new companies seeking accommodation on the Park.



Children and staff from the nursery singing Christmas carols in the Magdalen Centre. The new nursery facility will be completed in Spring 2002

The extension will be finished in April 2002. It will be linked to the existing building by an attractive glass sided bridge and the two buildings will operate as one, providing approximately 70,000 ft² of net lettable space. The Magdalen Centre will be the largest Innovation Centre in Oxfordshire and one of the largest in the United Kingdom.

The accommodation in the new building provides units from 2000 ft² to just under 7000 ft² and will be available on a one to three year short-form lease. The accommodation on three floors provides:

- VRV air conditioning
- Raised floors and suspended ceilings
- CAT 5E cabling
- Digital telephone system
- 146 car parking spaces
- Two lifts both going down to car deck level
- Ladies and gents toilets on each floor

As part of the new arrangement, the present restaurant is doubling in size, three additional meeting rooms are being provided and the conference facilities in the main building are being refurbished.

A new purpose-built building is also being constructed for the Oxford Nursery. The nursery was first established on the Park in 1997 and provides childcare for both parents employed on the Park and others in the locality.

Magdalen Centre extension due for completion in April 2002



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Seminar news

The activities of the CLRC Rutherford Appleton Laboratory (RAL) formed the focus of a RESBIG* seminar held in the Autumn of 2001. Over 80 delegates were provided with a review of present work and a fascinating insight into future work planned at the laboratory located just a few miles south of the Park.

Undoubtedly, it was the new Diamond Synchrotron Facility planned to be built at RAL that captured the imagination of the meeting. The first speaker, Professor Colin Norris, told how this will be one of the biggest research projects to be funded in the UK for 30 years involving an investment of some £195 million provided by the UK and French Governments and the Wellcome Trust.

He described how the synchrotron would work producing strongly focused brilliant light at all wavelengths from highly penetrating X-rays to far infrared radiation. These sources of light will be made available to scientists and engineers to enable them to investigate the structure of matter such as biological tissues, polymers, magnetic materials and catalysts at the atomic and molecular level. The studies will help them design new medicines and many high tech materials as well as investigate environmental issues like climate change.

When the synchrotron is completed in 2006, it will form part of a huge scientific complex at the laboratory including ISIS – a complementary facility using pulsed neutrons to study structure – and the Central Laser Facility which provides high power lasers for research.

The second presentation was given by Professor Keith Jeffery and concerned the possible future development in information technology of a so-called GRID interlinking computers to combine their computing power. He described present research work being carried out at CLRC and its potential for e-business, e-information and e-society.

Ian Macpherson, RESBIG secretary, explained “The potential is staggering – in the future, we should be able to plug into the computing GRID in

the same way that we currently use the electricity GRID. The GRID could eventually allow access to unimaginable amounts of computing power”.

The meeting also heard from Jeremy Curtis who outlined how work on the International Space Station could also benefit companies. He explained why the UK is supporting microgravity research opportunities in space and reviewed where the results of such work might find application in fields as diverse as materials, fluids, pharmaceuticals, genetics and health.

On this occasion, the seminar was given at the Rutherford Appleton Laboratory because of building work in the Magdalen Centre, the normal venue for the meetings. The RESBIG seminars have now returned to the Science Park and details of the next meeting are on the Science Park website at www.oxfordsp.com/seminars.



Professor Keith Jeffery of RAL with Bill McCardle of the Chamber of Commerce

*RESBIG stands for the Research and Science Based Industry Group, a special interest group of the Oxfordshire Chamber of Commerce. It organises regular seminars at the Science Park.



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