



# retort

THE NEWSLETTER OF THE OXFORD SCIENCE PARK

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- 'Fibre skin' breakthrough
- New directions for diabetes research
- Pharmaceutical information on-line
- Company Focus – Informax

AUTUMN 1999



## Editorial

As can be seen in this issue of 'retort' several companies on the Science Park are involved with pioneering work in the biosciences including Electrosols, Rademacher Group, Evolutec and many more.

With its mix of accommodation for different sized companies and a central location within Oxfordshire's bioscience cluster, the Science Park provides an ideal environment for companies like this to start and grow. To date over a quarter of a million square feet of space has been built at the Park and work on the second phase of development is already underway.

The founding of the Science Park, on Magdalen College land, and its subsequent outstanding success has been a great credit to the work of Keith Wills, Senior Bursar at Magdalen College, who is retiring from the College and the Science Park at the end of November 1999. We hope that Keith will take with him fond memories of his



Keith Wills – retiring in November – explains new developments to HRH The Duke of Kent during his visit to the Park last year

achievements and also the many friends he has made at the Park during the past eleven years.

Charles Young is welcomed to the College as the new Senior Bursar and will join colleagues from Prudential to help plan the Science Park's next stage of development into the new millennium.

## Lord Sainsbury launches Oxfordshire BioLink

A new initiative in the Oxfordshire area is set to help emerging bioscience companies make faster progress to success. The Oxfordshire BioLink brings together bioscience companies in Oxfordshire to encourage networking and the exchange of experience and know-how through activities and events.

Lord Sainsbury launched this DTI-funded initiative on 30 April 1999 at The Oxford Science Park. In his address he said "This type of activity is essential in providing networking opportunities for companies in a cluster, helping to convert the UK's renowned reputation in science and technology into world leading commercial success."

As a part of his visit he attended an exhibition in Florey House involving some 30 companies from disciplines ranging from gene therapy to diagnostics.

Lord Sainsbury is responsible for examining the development of biotechnology clusters and their role as engines of economic growth. The formation of the Oxfordshire BioLink emphasises the strength of Oxfordshire as the location of a leading biotechnology cluster.

Speaking at the launch, Peter Nolan, Oxfordshire BioLink's chairman said "We believe that networking will help companies in Oxfordshire succeed more quickly, as well as improving and

expanding the bioscience cluster. The biotechnology industry has the potential to be a major contributor to the future of UK plc."

The Oxfordshire BioLink web site is at <http://www.oxbiosci.org.uk>. A copy of the 'Biotechnology Clusters' report produced by Lord Sainsbury's team may be downloaded from <http://www.dti.gov.uk/biotechclusters>.



Lord Sainsbury launches Oxfordshire BioLink in Florey House



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Faster and cheaper drug development could be on the horizon thanks to software developed by InforMax – a newly arrived company at the Magdalen Centre.

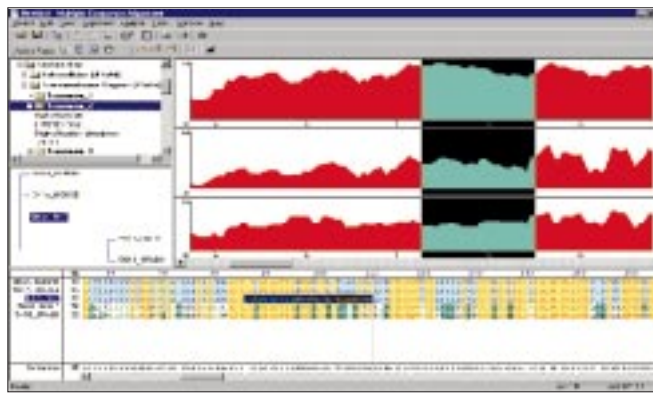
InforMax produces specialised software capable of dealing with the large amounts of data generated by the Human Genome and other similar projects. It uses bioinformatics to perform sophisticated analysis of DNA and protein sequences, the results of which are then fed into designing the most promising chemical compounds for new drugs.

## Company history

Alex Titimirov was a PhD student in molecular genetics at the Russian Academy of Sciences in Moscow when he was invited to lecture in America in 1989 by Nobel Prize winner, James Watson. He decided to stay and start up his own business in the USA and InforMax Inc. was born. The company now has about 1000 clients in 50 countries and employs 90 personnel at its headquarters in Bethesda, Maryland USA. Neil Halliday, Director of European operations commented "The company has more than doubled in size during the last 18 months. Demand for InforMax products is booming and the new offices at the Science Park will be at the centre of our European operations."



Vector NTI Suite is a comprehensive software package for computer support of molecular biology and genetics. It includes the Vector NTI program as a central logical component for biological data management and manipulation and three new software products for managing sequencing projects.



SSBM (Software Solution for Bio-Medicine) is a new generation of molecular biology and genetics software utilising relational databases, client server architecture and Java framework. It provides an integrated enterprise-wide environment for storing, managing, analysing and visualising genetic data.

**“ the cure for cancer... will be discovered on the personal computer, not in the test tube ”**



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## What is bioinformatics ?

Bioinformatics combines elements of computer science, molecular biology and sophisticated mathematics and is used to examine, analyse and interpret the huge quantities of data being generated by gene mapping projects from around the world. Some experts predict that by 2005, scientists will have mapped out all human genes (approximately 80 – 100,000) involving some 3 billion letters of code. In addition, other gene mapping projects include work on insects, plants and animals, each producing vast amounts of data.

Ultimately the software is intended to result in speedier, less costly drug trials for pharmaceutical companies around the world. It is estimated that a new drug currently costs over £100 million and on average will take 12 years to get to market. Advances in bioinformatics could dramatically reduce these figures. Dr Titimirov believes that the cure for cancer and other diseases will be discovered on the personal computer, not in the test tube, such is the potential impact of bioinformatics in the next few years.

# EVOLUtionary TEChnology

Compounds produced by blood-sucking insects and other arthropods could provide the basis for a range of new medicines if work being carried out by Evolutec is successful. The company is developing treatments for ailments ranging from asthma to heart disease using active molecules from the saliva of a number of blood-sucking parasites.

The first product will probably take advantage of the power of insect bites to overcome the allergic response in humans. Such a treatment, for example, could be used for hay fever, asthma or allergic conjunctivitis.



An engorged tick could be the source of new treatments

Another promising route of exploration is the ability of insects to stick to the skin. The company's director Wynne Weston-Davies explains "Ticks start to produce a kind of tissue cement as soon as they crawl onto the skin. After about an hour, they are firmly stuck on. We think the cement mimics keratin molecules and tricks the body into thinking that it is just another piece of skin. Such a product could be used instead of stitches to stick wounds together."

Yet another avenue of exploration concerns the blood-suckers' power to help the heart to pump. A heart treatment has been tested in laboratories at the John Radcliffe Hospital in Oxford and is being investigated further by overseas researchers working in collaboration with Evolutec.

Dr Weston-Davies believes that the side effects of these treatments is likely to be low. "Generally it is not in the parasite's interest to harm its hosts" he says.

The Natural Environment Research Council (NERC) has a 15% stake in the company and further initial funding was provided by private investors and a venture capital company. Additional funding is now being sought to help the company through its next stage of development.

## Diagnostic designs

New patient-friendly diagnostic tests for allergies and infectious diseases could be possible in the future using technology first developed by PowderJect, the Science Park company pioneering needle-free drug delivery systems.

Progenica Ltd – a subsidiary of the PowderJect Group – is developing proprietary skin test products which exploit the ability of the PowderJect® system to consistently deliver fine particles to a controllable depth in the skin. As well as allergy and HIV tests, a new product is being designed to allow for the simple pain-free monitoring of blood glucose.

Progenica has a world wide licence for PowderJect's delivery technologies for all diagnostics applications. The company will be changing its name in the near future to PowderJect Diagnostics Ltd.



A re-usable diagnostic device being developed by Progenica



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A novel class of compounds called phosphoglycokines (PGKs) is currently being investigated by the Rademacher Group Ltd which has its head office in Florey House on The Science Park.

The compounds have been found to be responsible for controlling many of the operations of hormones. Investigations into the relationship between them and the hormone insulin are consequently proving to be of great interest to researchers into both Type I and Type II diabetes.

Hormonal stimulation leads tissues to release different families of PGKs. In Type I diabetes, for example, insulin directs glucose, via the PGK system, either into energy conservation (as fat in adipose tissue) or glycogen in muscle. If the body is unable to manufacture insulin, as in Type I diabetes, the second messenger PGK compounds are not released and diabetes mellitus follows. Rademacher is currently working on PGKs to replace insulin therapy. Different PGK compounds may provide a spectrum of activities which could potentially normalise blood glucose levels and reduce complications associated with diabetes.

In non-insulin dependent Type II diabetes, tissues release an unbalanced family of PGKs in response to insulin. This imbalance may lead to obesity, hyperinsulinaemia, hyperglycaemia and hyperlipidaemia – a condition commonly known as syndrome X. Therapy with unique PGK agonists or antagonists may be able to restore the correct balance.

PGK compounds may also provide treatments for pre-eclampsia, neurotrophic action including



neuro-proliferation and growth, asthma, reperfusion injury, stroke and septic shock.

In this early stage of development, the company is focusing on specific areas such as diabetes and pre-eclampsia. However, the therapeutic applications of PGKs are potentially enormous and Rademacher is actively seeking partnership collaborations and joint ventures to fully exploit the company's intellectual property portfolio.

In addition to the PGKs as therapeutic entities, there are numerous opportunities for developing diagnostics. The company has recently filed several patents on methodologies to develop monoclonal antibodies to the PGKs and is also researching the molecular biology relating to the release and recognition of the PGKs. This is expected to result in further therapeutic opportunities involving recombinant proteins and gene therapy.

Florey House – Rademacher  
Group's headquarters



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## Virtual laboratory tour

Labflex, the largest producers of laboratory furniture and fume cupboards in Northern Europe, have released a new virtual reality CD for companies considering changes to their laboratories.

Labflex is a Danish company and Soren Trampedach head of the UK operation, explains "The virtual reality CD shows a possible laboratory design and allows you to tour the lab on the computer screen, visualising how it will look. Using the same virtual reality technology, we can measure a customer's existing or planned laboratory space and show them different potential laboratory layouts. Benching, fume hoods and other equipment can be moved around the virtual space until an optimum layout is achieved."

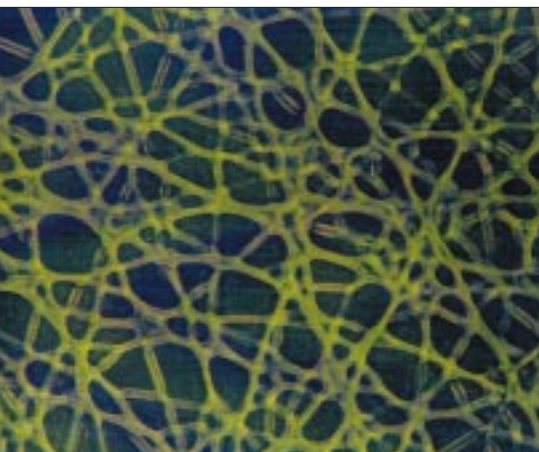
European laboratories interested in a free copy of the virtual reality CD should contact Soren Trampedach at Labflex.



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## 'Fibre skin' breakthrough



A uniform fibre skin – twenty times thinner than a human hair – can be created using electric charge



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A new 'fibre skin' is being developed by Electrosols Ltd at their laboratories in the Magdalen Centre.

The technique is expected to be used for wound healing applications and involves the rapid mixing of two chemicals to make an ultra-fine web of fibres. These fibres are electrically charged and when sprayed onto the skin settle almost instantly forming a new layer. The fibres can also incorporate pharmaceuticals for slow release and

the whole system is designed to prevent scarring by having cells grow at a regular rate.

The company is expected shortly to sign a licence deal to develop and exploit the 'fibre skin' with the intention that a personal, pocket size first aid device should be the initial product on the market.

The 'fibre skin' utilises the company's unique 'electro-aerosol' platform technology which uses electric fields to manipulate and deliver uniformly shaped particles of a pre-determined size (typically less than ten microns).

This technology is also being exploited in further drug delivery applications. The company has recently signed an alliance with the Battelle Memorial Institute of Ohio, USA which has formed a new company – Battelle Pulmonary Therapeutics – to develop an 'electro-aerosol' device for asthma sufferers designed to replace the current standard metered and powdered dose inhalers.

It is predicted that the new technology will deliver a far higher proportion of the drug to the lungs with the result that significantly lower drug doses will be required. Clinical trials have already been carried out at the Churchill Hospital, Oxford to establish the dose-efficacy for standard asthma drugs such as Ventolin.

Other recent company announcements include a licence agreement with Pfizer, a collaborative research programme with the MRC Immunochemistry Unit and a new initiative in DNA vaccines.

## Pharmaceutical information on-line

InPharm-Internet Services Ltd has announced the massive expansion of its on-line pharmaceutical community web site, 'InPharm World', at <http://www.inpharm.com>.

The expansion includes a news service and an events database designed to address the constantly changing information needs of the pharmaceutical industry. It has now integrated web initiatives from experts in different areas such as pharmacovigilance, IT, pharmaco-legal, pharmacolicensing, pharmaceutical Internet marketing and much more.

Included in this free access site is a library of tours of relevant topics, written twice a month by a medical writer. Readers can subscribe to an e-mail list to receive details of the latest tour as soon as it appears on-line.

Recent topics have included CFCs and asthma, heart failure and polio and already there are 40 other topics in the library.

InPharm's Managing Director, Peter Llewellyn says "The tours are popular but InPharm provides much more. There is something for everyone in the pharmaceutical and healthcare industries;

news, views, jobs, directories of agencies, professional organisations and freelancers, along with thousands of links out into the Internet."

The second InPharm CD has just been distributed to industry executives worldwide. It provides extensive information about service companies and useful software, including a 30-day trial of a special 'Pharma Edition' of award-winning Internet searching software, BullsEye Pro. Free copies of the CD are available from Peter Llewellyn.



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Free Pharmaceutical CD from InPharm

## Latest building completion

During the summer, John Eccles House was completed at the Eastern entrance to the Park and became the seventh building on the Park to be constructed. In total over 250,000 ft<sup>2</sup> of space has now been finished at the Park. The building is on three floors with a total net floor area of approximately 20,720 ft<sup>2</sup> (1925 m<sup>2</sup>). Designed by architects Proctor Mathews it provides fully fitted office accommodation incorporating raised floors, suspended ceilings and air conditioning.

Sir John Eccles (1903 – 1997) was a scientist and fellow of Magdalen College, Oxford. He came to Magdalen in 1925 as a Rhodes Scholar after attending Melbourne University in Australia. In 1963, he received a Nobel Prize for physiology and medicine. The prize was awarded jointly with Sir Alan Hodgkin and Sir Andrew Huxley 'for their discoveries concerning the ionic mechanism involved in excitation and inhibition in the peripheral and central portions of the nerve cell membrane'.



John Eccles House completed summer 1999

## The Hinshelwood Building

Ground preparation has now started for the next building on the Park, the Hinshelwood Building, to be built opposite Sharp Laboratories of Europe. Named after Oxford scientist Sir Cyril Hinshelwood – Nobel Prize winner for chemistry – the building has been designed by Nicholas Hare Architects.

There will be approximately 30,000 ft<sup>2</sup> (2786 m<sup>2</sup>) of accommodation on two floors with exclusive use of 150 car parking spaces provided at surface level. The western elevation will have views over the proposed lake and landscaping which form part of the next phase of development.



Model of the Hinshelwood Building



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# Venturefest Oxford

A major new international event presenting Oxford as a showcase for innovation and entrepreneurs was staged in Oxford this summer.

Venturefest Oxford, developed in association with the Said Business School and the University departments of Engineering, Chemistry and Medicine was held in June at St Catherine's College.

Peter Johnson, originator of Venturefest Oxford said "Oxford is renowned as a world-class seat of learning. It also has the fastest growing science park in the country, and some of the world's leading business players are based here, attracted by the quality of research and development facilities available via links with the University of Oxford, Brookes University and Government laboratories."

He added "In recent years the pace of Oxford based high-tech company development has accelerated. Venturefest Oxford was created both to showcase these organisations and to bring together new innovators, entrepreneurs, managers and their potential sponsors."

The steering committee for Venturefest included Isis Innovation, The Oxford Trust, Virgin Atlantic FastTrack and Business Link Heart of England. The key programme included an international

business plan competition, funding presentations for 'business angels' and seed funds, business start-up workshops, education exhibitions, seminars on innovation and research and presentations from leading companies.

The keynote address on the first day was given by Sir Martin Wood, founder of Oxford Instruments, who drew extensively on his own local, national and international experience speaking about partnerships for a world leading community. Sir Martin also presented the £10,000 prize money – donated by McKinsey and Company – to the winners of the business plan competition. The winners were e\*Sport whose initial product design uses cutting edge Global Positioning System technology to create a portable tracking device for outdoor athletes.

The success of the Venturefest event reflected the dynamic Oxford environment identified in a report published last year by academics at Cambridge and Coventry Universities. The report showed that Oxfordshire is rapidly emerging as one of the fastest growing high-technology regions in the United Kingdom.

Venturefest Oxford 2000 will be held on 26 and 27 June 2000 at Oxford Brookes University.



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Sir Martin Wood presents the keynote address to innovators, entrepreneurs and investors at Venturefest Oxford



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retort is published by the directorate of the Joint Venture, The Oxford Science Park, edited by Techwrite and produced by Stafford & Stafford.

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The Oxford Science Park is a joint venture between Magdalen College, Oxford and The Prudential Assurance Company Limited.