



The **Realisation** of Research

ANNUAL REPORT 2011/2012

UCLB PROJECTS AS AT 2012

2011/12 Turnover
£8.7m

£707,536

Funding for 21 Proof of Concept
projects in 2011/12

£546,000

Investments made in 2011/12

360

Patent families as at 31 July 2012

370

Total licences as at 31 July 2012

53

Equity holdings as at 31 July 2012

38

New licences in 2011/12

44

New patents applied for in 2011/12

21

Drug discovery projects
as at 31 July 2012



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The realisation of research – UCL Business continues supporting UCL's enterprise agenda

The 2012 London Olympics delivered quite a show. UCL Business (UCLB) spin out Space Syntax created the giant map of London's street network as an iconic part of the opening ceremony used as our front cover photo. Concerted effort within UCL to extend the new enterprise strategy meant we can better identify, record, disseminate and increase the level of enterprise-related activity across all UCL faculties. This helped to redefine aspects of UCLB activity to ensure our focus is concentrated on areas where we are best placed to add value.

During the year we agreed to 'spin out' UCL Consultants Ltd (UCLC), to create a dedicated and independent consultancy company for UCL. We created UCLB Devices Ltd to provide in-house capacity to CE mark medical devices. We also partnered with key hospitals to extend our networks. UCLB is now fully focused on the commercialisation of research, helping and supporting both UCL and NHS researchers to develop their ideas into concepts, services and products with applications around the world. The 'realisation of research' remains central to our business.

Financially, the company and its managed subsidiaries delivered a combined turnover of £8.7 million (excluding UCLC) (2011: £9.9 million) with cumulative profit at £1.45 million (2011: £1.65 million), the majority being donated back to UCL. As the UCLB portfolio increased to 811 (2011: 614), we increased staff numbers to deal with the workload and enhanced many of our services. All of this demonstrates the healthy flow of new ideas and a solid platform to deliver more activity in the future.

Our portfolio represents potential for significant growth. During the year an independently reviewed valuation exercise estimated the risk-adjusted net present value of UCLB assets under management in the range of £70 to £100 million. While these values are not reflected in the balance sheet, they reinforce our view that UCLB has projects that will make a substantial impact. Not only can we deliver positive benefits to society through new treatments and technologies, but our portfolio has the financial value to benefit UCL through collaborations with our spin outs and licensing partners creating wealth for the UK economy too.

2012 also provided an opportunity for a major £8 million investment by UCL to recapitalise the company thus reinforcing UCL's support for UCLB. This bodes well, as UCL's strategic partnerships, including those with UCL Partners – the Academic Health Science Centre, the Francis Crick Institute and London's Tech City – come on stream. The potential for UCLB remains extensive and far-reaching.

This annual report highlights many examples of our work with UCL's researchers and, increasingly, with our partner hospitals, collaborators and external businesses, to bring some remarkable technologies to realisation.

I hope you enjoy reading the stories. They are a testament to the efforts of our dedicated staff, directors and, importantly, our community of UCL and NHS researchers, whose original ideas we have the great privilege to work with.

A handwritten signature in black ink, appearing to read 'Cengiz', with a stylized flourish above the name.

Cengiz Tarhan
Managing Director



UCLB has been using events and sponsorships to develop our interactions with industry and UCL staff and students.

Our Ideas to Opportunities event on social enterprise and social investment was highly successful, and we will hold more of these during 2013. The UCLB Summer Reception again worked with the UCL Slade School of Fine Art, offering our prize winners signed limited edition prints of Nicolas Feldmeyer's installation Untitled (Woven Portico), below.



Our next annual Summer Reception will work with the Bartlett, UCL Faculty of the Built Environment, and will include a private view of the graduate Summer Show. UCLB sponsored the UCL Neuroscience Symposium 2012 and the UCL Entrepreneurs Society's UCL Apprentice Challenge 2012. We also supported UCL student Elizabeth Highton to fence competitively for Great Britain. Senior Business Manager Dr Rachel Hemsley received sponsorship in the Bristol Rugby Community Foundation 101 mile charity team bike ride, and I ran the Royal Parks Foundation Half Marathon for Macmillan Cancer Support.

I look forward to welcoming you to our upcoming events in 2013.

Dr Anne Lane
Executive Director



Enterprise at UCL is evolving.

UCLB remains central to delivering UCL's Enterprise strategy, which aims to:

- + create a highly effective structure of support for enterprise activities at UCL
- + position UCL as the leading UK university supporting university entrepreneurs
- + ensure that enterprise is embedded across the breadth of academic activities at UCL
- + make UCL the UK leader in collaboration with external social and commercial enterprises
- + maximise the impact on our society of UCL enterprise activities by effective publicity within and external to UCL.

The significant resources and expertise within UCLB represent a powerful tool for delivering UCL's ambitious plan to become number one in enterprise.

UCLB has demonstrated again that it can be possible to generate impact on our society alongside a healthy financial return – a remarkable achievement given the difficulties typically involved in commercialising intellectual property.

It's been another terrific year for UCLB, delivering high-quality technology transfer services to UCL, and facilitating knowledge exchange and collaborations. The remarkable breadth of exciting projects and initiatives are set to make enormous impact on our society.



Professor Stephen Caddick
Vice-Provost (Enterprise)

OUR MISSION

To help, support and commercialise UCL research for the benefit of humankind in its widest sense

Licensing technologies

For businesses seeking specific technology solutions, UCLB provides the commercial expertise, legal advice and administrative support required to broker licensing agreements, allowing companies to fully exploit unique technologies with the knowledge that exclusivity and market advantage is preserved.

Through UCLB, academics wishing to license technology have access to comprehensive support services, with business managers assisting throughout the process from initial negotiation to concluding contracts.

Creating spinout companies

UCLB has a long and successful track record in creating some of the most successful spinout businesses in key new industries. From discovery disclosure, commercialisation strategy, business plan development, contractual advice and formalisation, through to incubation support, including the recruiting of management teams and identifying investors, UCLB's services cover the entire process.

Product development and project management

UCLB provides UCL departments and institutes with a comprehensive project management service for single or multi-party collaborative industry projects. Our project management experts will assist the principle investigator in managing the full life cycle of the project. With a focus on commercialisation they will maintain effective liaison with internal and external key people and industry partners, ensuring the most effective route to market is delivered.

Placed within the project management section of UCLB is our subsidiary company, UCLB Devices Ltd (UCLBD), which allows us to develop products effectively and place them on the market. UCLBD specialises in the commercial and technical evaluation of all classes of medical devices, scientific instruments and *in vitro* diagnostics. We offer a unique service within an ISO 13485 compliant environment which encompasses commercial and technical evaluation, risk assessment, design, development, prototyping, regulatory evaluation, CE marking, manufacture, clinical effectiveness studies and ultimately placing products on the market.

Social enterprise

UCLB is a pioneer among technology transfer offices for developing social enterprises – businesses that address social or environmental needs, reinvesting profits into the community or back into the business. Academics who want to start up a social enterprise arising from their research can access our comprehensive services, including business plan development, contractual and company formation advice, social impact measurement advice, and identification of social investors.

Board Members



David Dutton
Chairman



Cengiz Tarhan
Managing Director



Dr Anne Lane
Executive Director

Non-Executive Directors



Professor Stephen
Caddick



Professor Anthony
Finkelstein



Sir Ian McAllister



Patrick Reeve



Dr Gill Samuels



Professor Sir John
Tooke

Other



Phil Harding
UCL-nominated
Officer



Hilary Rothera
Director of Finance
and Company
Secretary

Directors



Karen Cheetham
Director of
Projects



Dr Richard Fagan
Director of
BioPharm



Dr Steven Schooling
Director of Physical
Sciences,
Engineering, Built
Environment and
Social Sciences

WHAT WE DO

UCLB is responsible for technology development and commercialisation transactions for UCL.

Offering world-class expertise in areas from life sciences to engineering and from the arts to the built environment, we work to make commercial connections between the expertise and innovations of UCL's academics and the needs of industry and the wider marketplace.

'UCLB is invaluable. At a key stage in our multiple sclerosis therapeutic programme we had reached a funding gap. Senior Business Manager Dr Abbie Watts stepped in to identify an untapped funding source that proved to be the springboard for further support of our drug through phase 1.'



Professor David Selwood, Head of Biological and Medicinal Chemistry, Wolfson Institute for Biomedical Research, UCL, was awarded the UCL Business Award 2012 for the many projects he

has worked on, including start-up companies ProAxon, NCE Discovery now Domainex Ltd and Canbex, during his long relationship with UCLB.

Our first aim: Fulfil our Grand Challenges

The end point of research and innovation at UCL is focused on a set of Grand Challenges:

- + Global Health
- + Sustainable Communities
- + Intercultural Interaction
- + Human Wellbeing



This set of challenges forms the benchmark against which we judge all potential innovations emanating from UCL.

Our second aim: Add value where we can

At UCLB we believe it is not enough to simply deliver a technology transfer. We believe in bringing expertise and experience into the mix to add real benefit, through financial investment, strong intellectual property strategy, project management, prototype design, securing regulatory pathways and enabling access to markets.

This foundation of support is invaluable in ensuring that more novel ideas make the transition into marketable innovations for societal benefit and impact.

This is what we call the 'realisation of research'.

TECHNOLOGY PIPELINE

The diagram shows the number of active projects at each stage of the development process as at July 2012.

Invention disclosure

We gather commercially promising ideas from across UCL faculties and associated institutions. We select ideas with the best chance of commercial success.



Proof of concept (Exemplification)

We provide the critical funding to transform an idea into a proven innovation, demonstrating performance and confirming suitability for commercialisation.



Investments

Internal funding

We have access to significant sources of funding from within UCL and our own organisation.

External funding

We have unrivalled connections to key external funding bodies, such as research councils and venture capitalists, and an enviable track record in matching funds to projects.



Patenting

Where intellectual property is generated, our patent team identifies the strategy that offers the best protection for the technology and manages the legal formalities associated with that strategy.



Key: total number of active projects per phase



Biomedical sciences



Physical sciences, engineering, built environment and social sciences

Marketing and negotiation

Working with project innovators, we will help to identify the best route to market. Exit points range from licensing the technology to an industrial business and the creation of a joint venture collaborative research effort, through to the formation of a new company.



Product development and project management

We navigate projects through the regulatory and product development process, providing expertise and support through UCLH and other specialist clinical trials facilities.



Licensing

We will publicise the technology and find industry partners that could benefit from it, approach potential licensees, negotiate an agreement, and provide advice and support.



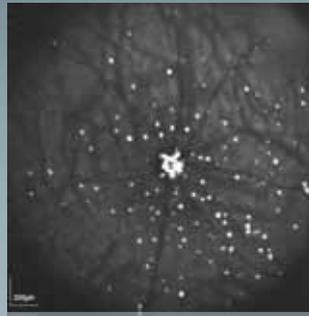
Spinouts

Where the technology would be better served by forming a new company, UCLB can set up a new entity, incubate, brand, promote and provide board-level support, as well as find markets for its products and services.



MARKET





OUR PROCESS:

B Invention

Patent

Regulatory pathway

Exemplification

A Pre-clinical

Phase I

Phase II

Phase III

C Market

'With one of the highest success rates in achieving translational funding from the Medical Research Council and the Wellcome Trust, UCL's translational research projects are driving our biomedical project portfolio of therapeutic, diagnostic and device technologies. The funding is applied to de-risk many projects, making them more attractive to potential licensees.'



Dr Richard Fagan, Director of BioPharm

A

Novel diagnostic test for glaucoma, Alzheimer's and other neurodegenerative diseases

Glaucoma is the second leading cause of blindness in the world after cataract, and according to the World Health Organization is the leading cause of irreversible blindness. Estimates put the total number of suspected cases of glaucoma at around 65 million worldwide. The current gold standard method to diagnose glaucoma is perimetry, which is dependent upon visual field defects to have occurred for the diagnosis to be made. Currently there is no test to diagnose glaucoma in its early stages prior to significant damage and irreversible visual function.

The loss of vision in glaucoma patients is caused by the death of the retinal ganglion cells within the eye. Detection of Apoptosing Retinal Cells (DARC) is a diagnostic method developed by Professor Francesca Cordeiro and Professor Stephen Moss from UCL Institute of Ophthalmology that allows rapid and direct visualisation of the dying nerve cells in glaucoma. It has also been shown to act as an early stage Alzheimer's diagnostic in model systems. The ability of DARC to rapidly monitor apoptosing cells means that it may also be used as a surrogate end point marker for neuroprotectant drug screening and clinical trials. Due to the length of time and cost of Alzheimer's and glaucoma drug trials, the Food and Drug Administration has identified the need for a clinically validated surrogate marker.

Dr Rachel Hemsley, Senior Business Manager at UCLB, has worked closely with both academics to raise funds to develop and to manage the patent portfolio of DARC. UCLB has invested £100,000 in proof of concept funds to develop DARC. Following this the Wellcome Trust invested £1.5 million in the pre-clinical toxicology and has invested a further £1.5 million for a Phase 1 clinical trial.



Dr Rachel Hemsley, Professor Francesca Cordeiro and Professor Stephen Moss



B

Development of novel NPR-C agonists for the treatment of cardiovascular disease

Work initiated at UCL by Professor Adrian Hobbs (now at Queen Mary, University of London) has identified a novel cardiovascular protective signalling pathway triggered through activation of the natriuretic peptide receptor (NPR)-C by C-type natriuretic peptide (CNP). Activation of this pathway is key to maintaining cardiovascular homeostasis. Abnormal NPR-C signalling has been linked to cardiovascular risk and an increased incidence of myocardial infarctions (MIs). Together, these observations make NPR-C an attractive target for the development of drugs to treat cardiovascular disease.

In collaboration with Professor David Selwood, and with support from UCLB's internal Proof of Concept funding (£50,000) and a Wellcome Trust Translational Award (£688,000), several series of potent small molecule compounds have been developed that mimic the biological activity of CNP in relevant *in vitro* assays. Importantly, these compounds promise to directly target multiple aspects of atherogenesis (the cause of cardiovascular disease): they have potential to lower blood pressure, stop platelets sticking together and maintain blood vessel integrity. This unique profile of activity – acting prophylactically by reducing the progression of cardiovascular disease and also reducing the extent of damage from acute MIs – promises a clear benefit over currently available therapies.

Dr Chris Williams, Senior Business Manager and Veronica Lindop, Project Development Manager at UCLB, are working closely with the academic teams to progress the project through the synthesis, testing and selection of drug candidates. This current work, supported by an additional £100,000 of UCLB's Proof of Concept funding, is focused on improving compound solubility, and as a result the team have been able to show significant *in vivo* activity of the lead compound. The academic team is now looking for further translational funding in order to progress the compounds into the clinic.



Dr Chris Williams, Veronica Lindop, Professor Adrian Hobbs and Professor David Selwood

C

Improvements to 2-photon microscopy: three-dimensional imaging, deep in tissue at high speed

The Silver group, inventors of this step change improvement to 2-photon microscopy, set out to solve a problem in neuroscience, and in the process have developed a new instrument with wider applications.

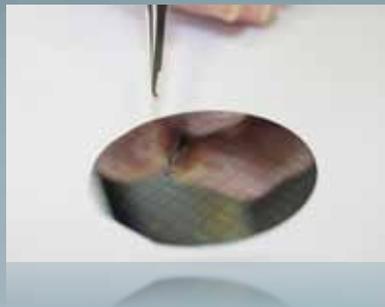
In neuroscience there is an instrumentation gap. Whole brains can be studied using EEG or MRI scans, which are slow and non-specific, while patch clamping is used to look at individual neurons. Professor Angus Silver, Dr Paul Kirkby and Dr Srinivas Nadella from UCL's Department of Neuroscience, Physiology and Pharmacology have, after years of work, come up with a way of looking at whole networks of neurons and measuring how they fire, deep in brain tissue in real time. Not only has this far-reaching implications for the study of neuroscience, but the problems they have solved while developing the instrumentation have also allowed them to point a laser beam in three-dimensional space in very fast time, record signals and remove chromatic aberrations from returning signals.

This project has already seen success on many fronts. The Silver group has had licensing interest from several parties around this technology, and is working on a term sheet with a preferred partner. The group has also won two large grants for this project: €3.5 million from the European Research Council and £2.5 million from the Wellcome Trust. The inventors now have funding to build four microscopes, and are generating first-in-the-world biological images. Dr Abbie Watts, Senior Business Manager at UCLB is working closely with the academic team to progress the project through the next development phase to add to the technology portfolio. UCLB supported this technology with a Proof of Concept grant of £38,000 in 2007, and filed three patents around it. The group is on track to license with a research collaboration early in 2013.



Dr Abbie Watts, Professor Angus Silver, Dr Paul Kirkby and Dr Srinivas Nadella

SPECIALIST EXPERTISE
**PHYSICAL SCIENCES,
 ENGINEERING, BUILT
 ENVIRONMENT AND
 SOCIAL SCIENCES**



OUR PROCESS:



‘The portfolio has continued to develop positively over the past twelve months, with promising opportunities emerging in areas such as energy materials and silicon photonics. Endomagnetics secured significant venture capital investment and is set to generate early revenues. Asio launched the Chirp app, while the use of a Space Syntax map in the opening ceremony of the London 2012 Olympic Games demonstrated the global impact of our portfolio companies.’



Dr Steven Schooling, Director of Physical Sciences, Engineering, Built Environment and Social Sciences

A

Resistive memory solutions

The latest ultraportable laptops, smartphones and tablets rely on memory technologies, such as Flash, to enable instant-on capabilities. However, PC memory is struggling to keep up with the steady demand for faster, cheaper, more reliable and more energy efficient technology. This has led industry analysts to predict that manufacturers of memory may hit a performance wall around 2015, creating a need for a memory format that can provide high-density storage, low power operation and unparalleled speed.

Resistive random access memory (RRAM), based on the concept of implementing the memory function by switching the resistance of the material between a high and low state, has been put forward as a promising and potentially disruptive concept for future non-volatile memories. Dr Tony Kenyon and Adnan Mehonic from the Department of Electronic and Electrical Engineering at UCL have recently demonstrated the feasibility of a non-volatile RRAM memory device that exhibits superior performance characteristics compared to other research devices. The UCL device is directly compatible with microelectronic device fabrication. It exhibits very fast switching times, low power consumption and long memory retention and can be scaled down to follow the current trend of reduced feature size in modern CPUs.

Key potential applications considered are embedded memory for the next generation of microprocessors and 3D stacked memory for increased density and storage with very low power consumption.

While the UCL device and technology are at an early stage, the results have attracted considerable interest from semiconductor companies active in memory device fabrication and applications. UCLB has supported Dr Kenyon’s group with proof of concept funding and intellectual property protection, and Dr Vassilios Albanis, Business Manager at UCLB, is working closely with the team to commercialise this technology.



Dr Vassilios Albanis, Dr Tony Kenyon and Adnan Mehonic



B

Chirp

The idea of using short, cute snippets of sound to enable data transfer between mobile devices was conceived by Professor Anthony Steed and Patrick Bergel at UCL's Department of Computer Science when considering how to share information between 'unconnected' co-located users.

They recognised that the opportunity to use sound as the transfer mechanism held immense potential for global adoption, enabling any appropriately encoded data to be sent simply over the air.

A Proof of Concept award from UCLB in 2010 enabled the team to design and patent the system and protocol, and to implement it onto a pair of iPhones. The sound of the short, two-second audio tag was based loosely on birdsong, and hence the Chirp brand was born.

With support from Senior Business Manager Marina Santilli at UCLB, the company Asio Ltd (trading as Animal Systems) was spun out in December 2011, with seed funding from UCLB and Imperial Innovations. The focus of the start-up was to engineer the system to work as reliably as possible in a wide range of audio environments.

The Chirp app for iPhone and iPad was launched in July 2012, enabling users to chirp photos, messages and weblinks to each other. Within one week of launch, Chirp made headline news on the BBC's Technology webpage.

The company is currently in licensing discussions with a number of mobile hardware and component manufacturers, keen to embed the technology in their chipsets. It has also been approached by high-profile digital technology companies looking to promote sharing features on their mobile apps by incorporating Chirp.

As declared succinctly by the *Independent*: "Chirping could well become the new tweeting".



Marina Santilli, Professor Anthony Steed and Patrick Bergel



C

Unlocking the commercial potential of hydrogen fuel cells

Fuel cells work by converting the chemical energy from a fuel such as hydrogen into electricity through a chemical reaction with oxygen, and where the resultant waste product is water.

Applications for fuel cells include automotive, industrial and domestic combined heat and power systems (CHP), distributed back-up power, and micro-applications in portable devices. The potential of these markets is huge. For example, by 2050 fuel cells could be powering up to 560 million cars – a third of all cars on the road.

One of the main barriers to the widescale deployment of fuel cells is cost. A significant component of this cost is due to the electrocatalysts present at the heart of fuel cells. These are comprised almost exclusively of platinum, a scarce and increasingly expensive commodity. In automotive applications more than 20g of platinum are required, representing approximately 10% of the entire automotive fuel cell system cost.

To address this cost reduction requirement, a research team led by Dr Dan Brett has developed a novel non-platinum electrocatalyst that performs on a par with platinum but which offers substantial cost savings. Importantly, the non-platinum catalyst is a 'plug-and-play' component that can be readily integrated with today's state-of-the-art hydrogen fuel cells.

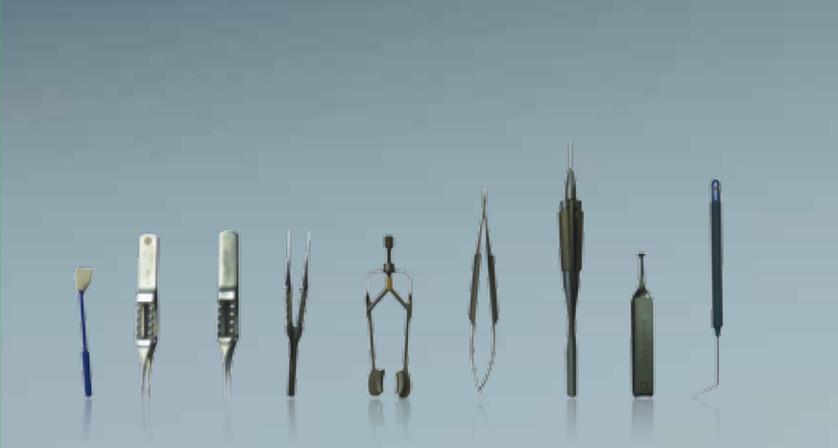
The project has been carried out in UCL's Electrochemical Innovation Lab, a research and commercialisation accelerator based in the Engineering Faculty. This involved the innovative 'spinning-in' of background intellectual property and a large portfolio of equipment from CMR Fuel Cells UK Ltd to provide some of the foundations for development of the catalyst.

Dr Tim Fishlock, Senior Business Manager at UCLB, and Dr Dave Hodgson, UCLB Commercialisation Fellow, are now working with the UCL and CMR Fuel Cells research teams on a new venture to take this exciting technology to market in 2013.

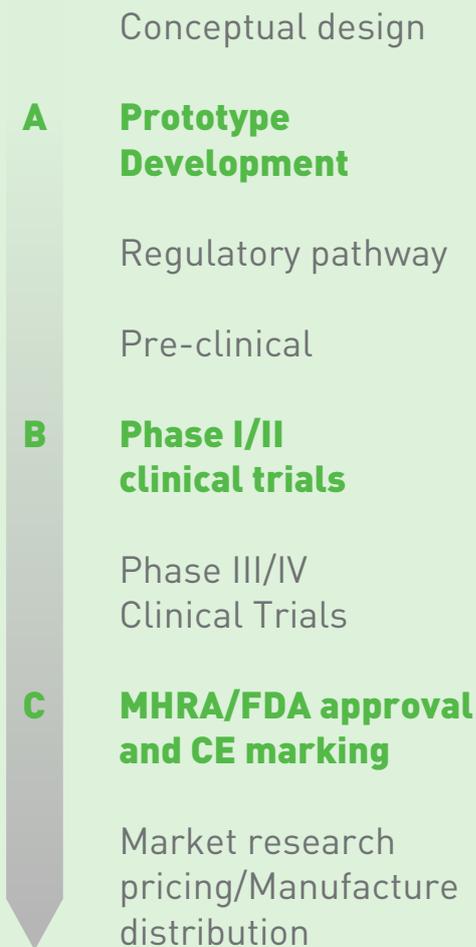


Dr Tim Fishlock, Dr Dan Brett and Dr Dave Hodgson

PRODUCT DEVELOPMENT AND PROJECT MANAGEMENT



OUR PROCESS:



'UCLB Devices has established a quality-management system to support UCL's researchers. We help to navigate regulatory roadmaps, build prototypes, CE mark devices and deliver innovative medical devices that offer real improvements and advantages to clinicians and patients.'



Karen Cheetham, Director of Projects

A

Khaw instruments for use in ophthalmic surgery

Glaucoma is the second leading cause of preventable blindness worldwide, with approximately 65 million people affected. There is currently no cure. Surgery remains the only option for patients in advanced stages of the disease.

Professor Peng Tee Khaw of Moorfields Eye Hospital is redesigning an existing set of ophthalmic instruments used in glaucoma surgery known as the Safe Surgery System. The Safe Surgery System redevelopment is based on improving the specifications of the original pioneering devices to improve their ease of use and overcome inherent design flaws.

Dr Rachel Hemsley, Senior Business Manager and Ben Coppins, Project Development Manager at UCLB, are working closely with Professor Peng Tee Khaw, CAD designers, regulatory experts and specialist ophthalmic instrument manufacturers to facilitate the design, prototyping, pilot scale manufacturing and CE marking of these instruments through UCLB Devices Ltd, a subsidiary company of UCLB. This will ensure that these devices are market ready and bring benefits to patients and revenue to UCL as quickly as possible. The second generation of Khaw ophthalmic instruments are expected to be on the market in early 2014.



Dr Rachel Hemsley, Ben Coppins and Professor Peng Tee Khaw



B

Developing UCL's nanocomposite polymer

Professors Alex Seifalian and George Hamilton have been optimising UCL's polymer material for many years. The project management team have managed the development process for vascular grafts and other medical device applications, with expertise to manage projects from conception through to regulatory assessment, product development, prototype build, clinical trials and CE marking.

Pre-clinical stage

The project management team:

- + mapped out the regulatory pathway of the grafts as a medical device
- + assisted in securing a £500,000 grant from the Wellcome Trust, and were responsible for:
 - + coordinated and monitored all 40 ISO validation tests to ensure regulatory compliance
 - + compiled key regulatory and commercially sensitive documentation
 - + identified and audited the testing facilities of contract research organisations to perform the in vivo study
 - + monitored the nine-month sheep study to ensure compliance with good laboratory practice
 - + drafted the final study documents

Clinical stage

Following the success of the pre-clinical study, Jaspal Kaur-Griffin, Senior Project Development Manager at UCLB, assisted in securing a further £1.6 million of funding to conduct a clinical trial for vascular access and coronary artery bypass graft applications.

The project management team:

- + ensured that the trial study design and GMP manufacture met all regulatory requirements
- + sourced and processed quotations and coordinated all 10 stakeholders at multiple locations
- + worked with the clinicians to complete the clinical trial documentation
- + met the Ethics Committee to explain why the grafts meet all regulatory requirements
- + will coordinate CE marking the grafts before a commercial exit is sought.



Jaspal Kaur-Griffin, Professor Alex Seifalian and Professor George Hamilton

C

Self-illuminated fully disposable vaginal specula

Evexar Medical Ltd, a wholly owned subsidiary of UCLB, is currently expanding the range of products in its portfolio to include a range of self-illuminated vaginal specula.

The Evexar vaginal specula are single use, self-lit, fully disposable devices that utilise an illuminator attached to the base of the handle, together with a light rod to direct the light to the end of the speculum where it is most needed. The self-illuminated products reduce the risk of cross-infection, and eliminate the need for costly fibre optic equipment and time-consuming cleaning processes. The user also has the option of including a fully integrated smoke tube that can be employed in surgical procedures where, for example, diathermy is used, to protect the user against inhalation of infective organisms.

The concept of a self-lit system, with no need for cables or power sources, allows the user freedom to use the product for examination and/or surgical procedures in any suitable location within the primary care or hospital sectors. The system, including light source, is single use and disposable via the normal hospital clinical waste route. It is also designed to run cool with no heat generation. The batteries are alkaline and contain no lead, cadmium or mercury, making them more environmentally friendly.

Karen Cheetham, Director of Projects at UCLB, has worked closely with UCLB Product Development Manager Dr Richard Wedge, Regulatory Consultant Tony Thorne, and a team of designers to ensure that the final designs of the specula were in line with clinicians' expectations. The product range that has been developed is ideal for use by all suitably qualified healthcare professionals in hospitals, GP surgeries and private clinics.

The vaginal specula will be CE marked and launched onto the market in 2013. This project illustrates the skills and experience within UCLB to transform a clinical concept into a product that can be sold in global markets.



Karen Cheetham, Dr Richard Wedge and Tony Thorne

SOCIAL ENTERPRISE



'UCLB is a pioneer among technology transfer offices for developing social enterprises. I look forward to working with more UCL academic staff to create social enterprises with positive societal impact.'



Analia Lemmo Charnalia
Social Enterprise Business Manager

1. What is social enterprise?

Social enterprises are businesses with primarily social objectives, and which principally reinvest their surpluses in the business or community in order to deliver on their stated social purposes.

2. Why is social enterprise important?

The UK has a diverse ecology of entrepreneurial activity aimed at meeting social goals. This has resulted in an industry comprising over 60,000 social enterprises, contributing at least £24 billion to the UK economy and employing over 800,000 people. The UK is an acknowledged leader in the social enterprise area, with further growth in social ventures likely to be stimulated by the knowledge base residing in the UK's leading research-intensive universities.

Benefits to UCL from enhanced support for social enterprise:

- + Innovative projects that create social impact generate positive publicity, helping to increase the reputation of academics in their particular fields. This in turn generates further research and research income.
- + There is a clear fit between social enterprise and the impact agenda, providing channels to allow academics to carry out research with clear practical outcomes.
- + Successful social enterprises will deliver profits that can be used to support UCL departments and research groups; for example, by funding student scholarships and professional development.

3. How is UCLB supporting the social enterprise agenda?

UCLB can help establish and quantify the social need, prove the underlying concept, and create the start-up organisation to capitalise on the social-based opportunity.

Mapping for Change

Mapping for Change connects research with impact by providing participatory mapping services to communities, local authorities and developers. Professor Muki Haklay from UCL's Department of Civil, Environmental and Geomatic Engineering, and colleagues have developed technology, expertise and innovative tools that empower communities to take ownership of the changes they want to make in their localities.

Communities are invited to take an active role in improving their area by collecting data: for instance, for the benefit of town planning or reduction of pollution. They then map this information to show key areas where change is needed. Since its creation, Mapping for Change has assisted more than 1,100 beneficiaries through projects with revenues and other sources of funding. It has supported a full-time person to work on the venture, and created 10 volunteering and intern opportunities for students.

The founders, Muki Haklay and Louise Francis, recently received a Higher Education Social Entrepreneurship Award from UnLtd and the Higher Education Funding Council for England to mark their achievement in this area. UCLB is providing Mapping for Change with contractual, intellectual property and corporate structuring advice.

www.mappingforchange.org.uk



Professor Muki Haklay and Louise Francis





Tiny Tastes

Tiny Tastes is a practical and affordable way for parents to encourage young children to try new foods, particularly vegetables, by introducing a gaming element into mealtimes.

The project, developed by Dr Lucy Cooke at UCL's Department of Epidemiology and Public Health, is the result of over 10 years' research carried out by the Health Behaviour Research Centre within the Department of Epidemiology and Public Health at UCL. This has shown that after tasting a new vegetable at least 10 times, even the most reluctant children tend to like it more. Subsequent studies have also shown that including a small reward element further enhances healthy eating patterns by children.

Parents have been very positive about the simplicity and effectiveness of Tiny Tastes, with benefits seen immediately post intervention being maintained at three months' follow-up. The team is now seeking to roll out the Tiny Tastes concept to a wider audience of parents and children, with UCLB providing business planning support and contractual advice to commercialise this valuable resource.

www.tinytastes.org



Dr Lucy Cooke

Tiny Tastes

Social enterprise initiatives

UCLB, along with UCL Advances and the UCLU Volunteering Services Unit, has been chosen to deliver a new partnership with the Higher Education Funding Council for England (HEFC) and UnLtd to encourage social entrepreneurship.

The initiative will see selected higher education institutions, including UCL, lead a programme to significantly increase the support given to academics and students looking to set up social enterprises.

UCLB, UCL Advances and the Volunteering Services Unit will work together with Professor Muki Haklay, UCL Knowledge Transfer Champion for Social Enterprise over the academic year 2012-13 to strengthen the social enterprise culture that is evolving in the institution. They will also provide Proof of Concept funding and support to academics and students looking to set up social enterprises.

A team led by UCL and UCLB secured £65,000 in funding from the 2012 Fast Forward competition organised by the UK Intellectual Property Office, for an innovative project to help academic social entrepreneurs and Technology Transfer Office staff further develop knowledge-based social ventures with their institutions.

This 12-month project will bring together social entrepreneurs and technology transfer staff to develop online resources that can provide vital support throughout the higher education sector.

The toolkit will include examples of social enterprise business models and good practice, case studies and model agreements. A programme of engagement and dissemination will also ensure that the results of the work are widely shared and adopted.



SPECIALIST EXPERTISE

PARTNER HOSPITALS

Partner Hospitals

UCLB works with staff across UCL Partner Hospitals to support exceptional research and clinical practice for positive social, health and economic benefit.

What is NHS innovation?

Innovation is the process of developing an idea to meet a technical or operational need. In the NHS this is usually a healthcare need that aids clinical practice towards a positive outcome.

In the healthcare sector innovation can take different forms. Often innovation may be related to process and service management, but it may also be through the development of new medical technology or clinical tools. Examples of healthcare innovations include software, surgical equipment, self-management handbooks, new drugs and new therapeutic uses for drugs already used in clinical practice medical devices.

Innovation in healthcare aims to make the patient experience better and improve safety. It also has commercial potential not only to save costs but also to bring in income for the Trust and the innovator. In addition to having commercial benefit, healthcare innovation helps the day-to-day lives of hospital workers and patients.

Services we provide include:

- + expertise in evaluating innovative ideas and identifying development routes and commercial potential
- + help in identifying the barriers to innovation and solutions to overcome them
- + advice on how to protect ideas to enable translational funding or collaboration with commercial partners
- + expertise in identifying and applying for development or translational funding
- + advice from legal experts on intellectual property or commercial agreements
- + access to expertise around regulatory compliance, such as CE marking
- + experience of dealing with organisations that can produce prototypes, including (but not limited to) devices, surgical equipment and software
- + negotiation of commercial terms with licensees or investors.

UCLB has designated business managers for the four NHS Trusts we work with:



Dr Rachel Hemsley

Moorfields Eye Hospital 
NHS Foundation Trust



Dr Chris Williams

Great Ormond Street 
Hospital for Children
NHS Foundation Trust



Dr Libby Oakden

University College London Hospitals 
NHS Foundation Trust



Rebecca Paulraj

Royal Free London 
NHS Foundation Trust



Saphena anti-DVT, non-slip stockings

Deep vein thrombosis (DVT) is a medical condition caused by a blood clot in one of the deep veins in the body, usually in the muscles of the calf and thigh, and this may lead to complications such as pulmonary embolisms.

Each year, one in every 1,000 people in the UK is affected by DVT. Surgery and some medical treatments can increase the risk of developing a DVT. An estimated 25,000 people admitted to hospital die from preventable blood clots each year.

The Department of Health has now made the prevention of DVT a priority across the NHS, recommending that all patients admitted to hospital be routinely assessed for their risk of developing a blood clot, and if necessary given preventative treatment.

UCL scientists and clinicians developed a new stocking in 2003 to prevent embolisms. This has seen a rapid growth in market share since its commercial launch. G + N Medical, who market the stockings under licence, have now developed a new version incorporating a strip of grip-dots on the sole to prevent falls and slips.

These latest Saphena@Grip stockings have been developed to coincide with key NHS Innovation Challenges aimed at reducing accidents. Approximately 280,000 patients are hurt each year from slips, trips and falls, resulting in an additional treatment cost of £30 million.

This design innovation has been effective in reducing the number of accidents and associated costs by over 75%, according to a study performed at Southend University Hospital NHS Trust.

Dr Abbie Watts, Senior Business Manager at UCLB, commented that the preventative clinical benefit and health and safety aspects associated with using this product made for a significant health economics case. Having supported development of the technology and provided the commercialisation efforts, it is heartening to see diffusion and implementation of this product at UCLH and other Trusts.

Helicon Health (HeartBeat)

Long-term chronic medical conditions such as heart disease, cancer, renal disease, mental health and diabetes affect almost 2.6 million people in the UK, and account for approximately £16 billion of the total NHS spend each year. Management of these patients is usually fragmented between primary and secondary care, with insufficient continuity to provide adequate disease management over extended periods.

Approximately £55.3 million from the economic burden of stroke could be saved in England using better anticoagulant patient management programmes, with pilot studies indicating that 7,100 strokes each year may be avoided with timely intervention.

The UCL Centre for Health Informatics & Multiprofessional Education has developed an integrated package focused on improving stroke prevention via anticoagulation management. This work was done in collaboration with Whittington Health, North Middlesex Hospital, local GP practices, primary care trusts and community pharmacies. The result was a community-based anticoagulant and stroke prevention service called HeartBeat.

Led by Professor David Patterson at UCL the service was highlighted in the NHS Customer Service Excellence award made to the Whittington Cardiovascular Department, and commended as a transformational service the Cabinet Office. Interest from the NHS has been high, with the service being showcased on the NHS Improvement website.

HeartBeat contains clinical applications, disease management tools, electronic advisory functions and advanced reporting analytics. It is built on a solid standards-based electronic health record (compliant with ISO13606 and the openEHR specification). Consulting services cover the design of clinical service delivery and the set-up and support of clinical governance. Cardiovascular disease was the next offering added to the HeartBeat portfolio, and the integrated and standards-based nature of the product will facilitate the support of conditions such as diabetes in the future.

UCLB has created the spinout company Helicon Health to commercialise HeartBeat. The aim of this business is to enable healthcare providers to improve chronic condition management by providing an integrated package of web-hosted or cloud-based software – HeartBeat includes clinician education programmes, governance modules and consulting services.

FINANCIALS

UCL BUSINESS PLC BALANCE SHEET

	(£'000)		(£'000)
Fixed assets		Capital and reserves	
Tangible assets	181	Called up share capital	8,412
Investments*	3,324	Profit and loss account	-1,941
	<u>3,505</u>		
Current assets			
Debtors	4,301		
Cash	3,240		
	<u>7,541</u>		
Creditors: amounts falling due within one year			
	<u>-4,575</u>		
Net current assets			
	<u>2,966</u>		
Net assets		Shareholders' Funds	
	<u>6,471</u>		<u>6,471</u>

*Investments held as fixed assets are stated at cost less any impairment in value. During the year the key UCLB projects represented by equity interests in spin outs expected milestone and royalties on licensed products and those in development, were valued using a risk adjusted net present valuation model.

Based on that information, the UCLB Board is comfortable that the value of assets managed by UCLB lies in the range of £70 million to £100 million.

FINANCIALS

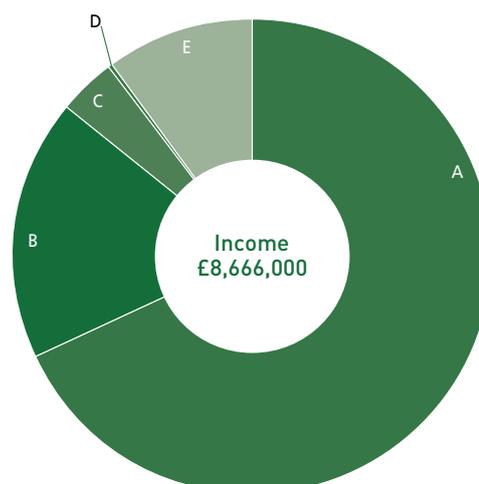
UCLB GROUP ACTIVITY

Summary results

	(£'000)	(£'000)
	2011/12	2010/11
Income	8,666	9,960
Expenditure	7,217	8,325
Profit before gift aid to UCL	1,449	1,635

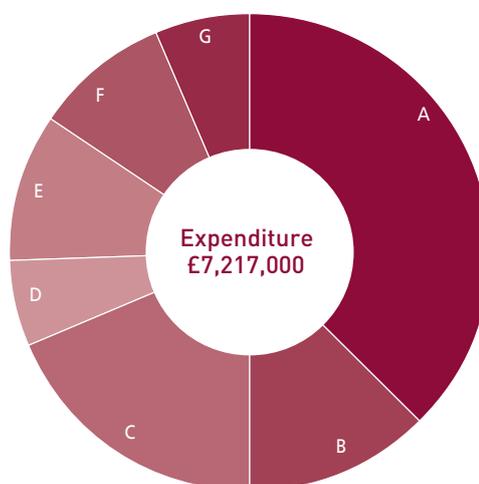
Income analysis for 2011/12

	(£'000)
A Royalties and intellectual property income	5,899
B Services to UCL	1,554
C Research and Proof of Concept funding	332
D Interest	16
E Other	865
	8,666



Expenditure analysis for 2011/12

	(£'000)
A Staff costs	2,711
B Research and consultancy	899
C Patent costs	1,344
D Premises	425
E Other	719
F Distributions to academics and inventors	663
G Distributions to UCL	456
	7,217



The above figures include those of UCL Business PLC and companies administered by UCL Business PLC, including UCL Cruciform Ltd, Evexar Medical Ltd and Pentraxin Therapeutics Ltd.

OUR APPS



Chirp

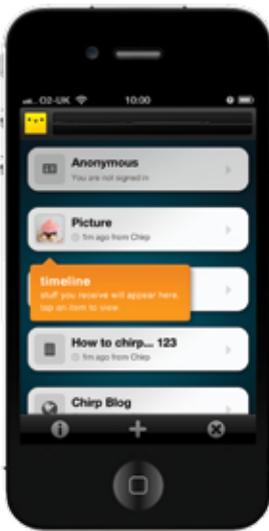
Chirp is a unique app that lets you share pictures, webpages and message using special electronic birdsong sound to 'chirp' information over the air to your friends.

iGE

iGE provides a complete interactive tool in English grammar, enabling you to develop English language knowledge and skills more effectively.

AnswersIn Medicine

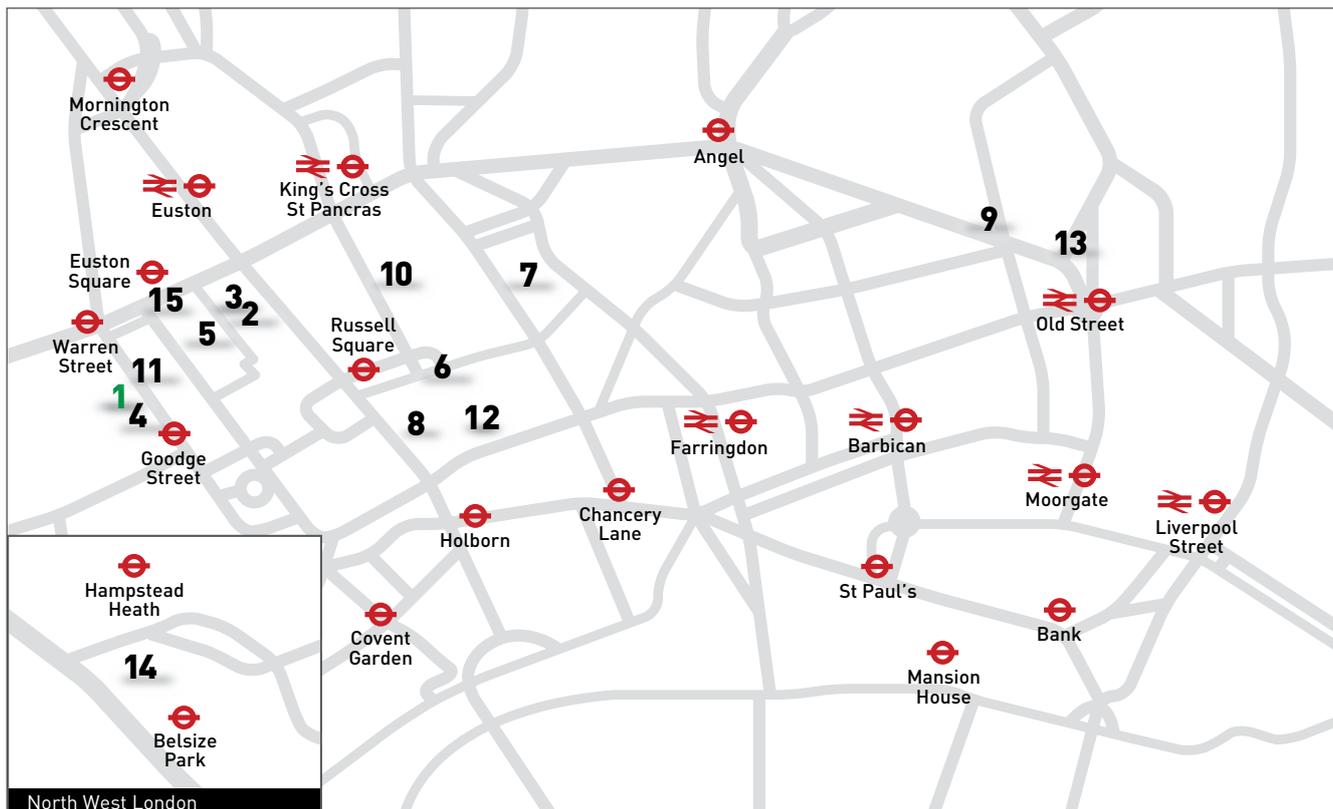
AnswersIn Medicine app covers all aspects on internal medicine, including interactive clinical examinations and engaging illustrated talks of the main diseases and conditions.



Download our apps



FIND OUT MORE



Locations

1. UCL Business PLC
2. UCL Enterprise
3. UCL Advances
4. UCL Consultants
5. University College London (UCL)
6. UCL Institute of Child Health
7. UCL Eastman Dental Institute
8. UCL Institute of Neurology
9. UCL Institute of Ophthalmology
10. UCL School of Pharmacy

Partner Hospitals

11. UCL Partners
12. Great Ormond Street Hospital for Children
13. Moorfields Eye Hospital
14. Royal Free London
15. University College London Hospitals

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Acknowledgements

We are privileged to be able to call on the partnership support of an unrivalled group of institutions. When you engage with UCLB, you engage with all of these great knowledge centres.



The **Realisation** of Research

UCL Business PLC

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UCL | ENTERPRISE

delivered by:

