

# Building Commercial Success



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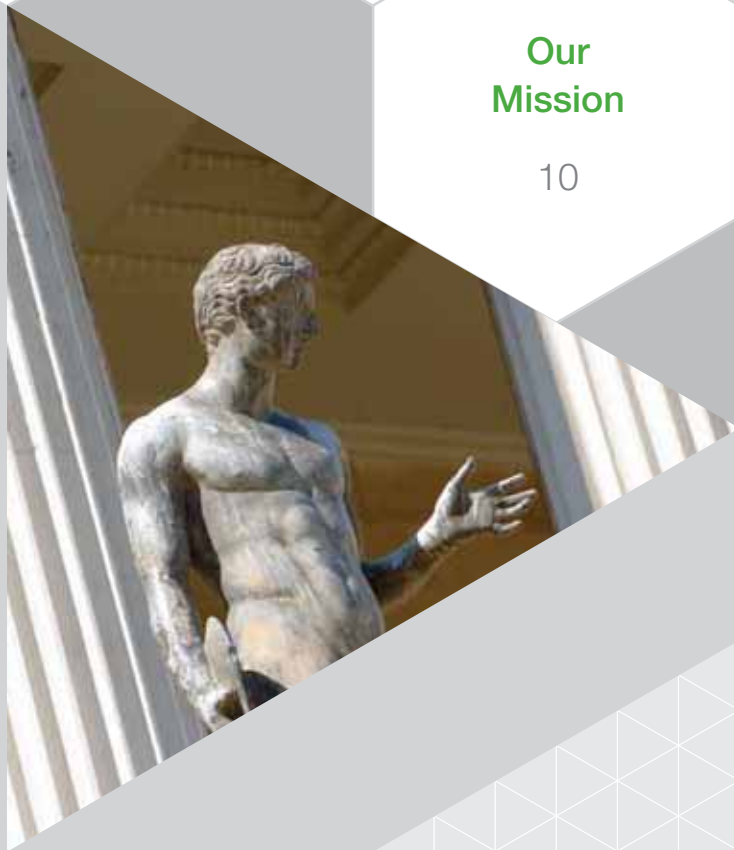
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**UCL Business** is the technology transfer company of **University College London** (UCL), a leading university recently ranked 7th in the world according to The Times Higher Education Supplement.

## Welcome to UCL Business PLC

As the technology transfer business for UCL, UCL Business (UCLB) enjoys unrivalled access to a centre of research that encompasses a unique breadth of disciplines, from biomedical sciences to the arts, physical sciences, engineering, social sciences and the built environment.

We believe this makes UCLB one of the UK's most diverse technology transfer companies.

## UCLB is Unique

We are proud to be financially self-sufficient and have an impressive history of making significant profits for UCL through the successful commercial exploitation of the excellent research the university inspires.

More importantly our values echo UCL's as we seek to commercialise ideas which have an impact on UCL's Grand Challenges to improve global health, sustainability, intercultural interactions and human wellbeing. We also recognise that the success of UCLB is dependent on the experience and commitment of our team. We promote and thrive on an open environment where ideas are listened to and valued. It is this company culture, our values and our track record that sets us apart and makes us unique.

## Supporting Innovation Every Step of the Way

We seek ideas from inception and guide them to market, through licence agreements or creating spinouts, attracting external funding and often investing UCLB's own capital into projects, supporting some of the risk and demonstrating our commitment to ensuring commercial success.

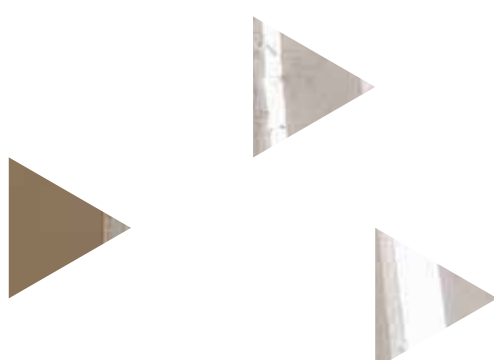
At UCLB, we hope that our dedication to bringing innovation to market will help shape modern lives on a global scale.

This brochure has been created to give the reader a flavour of our activities, our successes and, most importantly, our vision for the future.



### **Cengiz Tarhan**

Managing Director  
UCL Business PLC



# Introduction

**UCLB has an exceptional track record for commercialising ideas generated from research excellence. The team's breadth of expertise enables them to recognise opportunities, identify collaborative partners and deliver benefits back to UCL and to society as a whole.**

As a research-intensive university (part of the world renowned Russell Group) UCL is committed to providing solutions to global issues. Located in London's heart, we are at the very hub of the UK's economic activity.

At UCL, we view technology development and knowledge transfer as being a major component of academic function and as an institution one of our goals is the commercialisation of our research. UCLB was created to be at the centre of interactions between academia and industry, essentially one point of contact for all commercial activity, including forming research alliances, handling licence and IP issues and negotiating legal milestones.

Part of UCL's innovative approach is the way UCL integrates its excellent biomedical research with other disciplines such as physics, chemistry and engineering. What really sets us apart is the strength of our relationships with top hospitals in the area, which have recently enabled the establishment of Europe's largest academic health science partnership, called UCL Partners.

It is my hope that this brochure provides the reader with an exciting insight into what can be achieved, and perhaps encourages you to become involved in one of the most exciting and innovative technology development companies in the world.



**Professor Mike Spyer**

Vice-Provost  
Enterprise  
UCL



# Building Business Through Strong Performance & Creative People

## Our Evolution – We're Built on Success

UCL Business PLC was formed in August 2006 through the merger of UCL BioMedica PLC and UCL's internal knowledge transfer department, formerly also known as UCL Business.

The former UCL Business had provided a link between academia and industry, aiding the development of commercially valuable technologies arising from UCL. UCL BioMedica had been established to commercialise opportunities arising from UCL's biomedical research strengths, as well as to conduct clinical trials.

The integration of these two highly successful technology transfer activities was a logical step, creating a single organisation focused on delivering the complete commercialisation process – from patent registration and support for the creation of new businesses, through to licensing and sales of technologies to industry partners.

The new business was named UCL Business PLC, and is now generally referred to by the initials UCLB.

## Our People – We're Focused on Growth

The outstanding track record of success at UCLB has only been possible thanks to the creative, knowledgeable and inspired people that form our core team.

Building our business with growth in mind, our board includes far-sighted individuals with a combined experience of technology transfer, the commercialisation of research, and the needs of industry.

These experts set the strategy that best fits the aims of the business and the needs of the market, which is then implemented by a team of dedicated, scientifically and commercially-minded Business Managers who provide the vital conduit between the innovator and the marketplace.

Our rapidly expanding Project Management division is a reflection of the growing importance of this area for the business, as more and more industrial partners seek the expert project management skills that only a specialist organisation such as UCLB can provide. Working alongside them, our legal and financial team provides the very best support and protection, leaving scientists free to do what they do best – innovate.



# Our Organisation

**Professor Malcolm Grant**  
Provost  
UCL



**Professor K Michael Spyer**  
DSc MD(Hon) FRCP(Hon) FMedSci  
Vice-Provost, Enterprise UCL

Professor Spyer leads UCL's Knowledge Transfer strategy, entrepreneurship and innovation. A neuroscientist specialising in the central nervous control of the heart, circulation and ventilation, his research has been supported by the Wellcome Trust, the British Heart Foundation, MRC and BBSRC, and has led to an outstanding career: from the Sophia Jex-Blake Chair of Physiology and Head of the Department of Physiology in the Royal Free Hospital School of Medicine, he became Dean of the Royal Free and University College Medical School, becoming Vice-Provost (Biomedicine) of University College London in 2002 and Vice-Provost (Enterprise) in 2006. His current activities also include: Non-executive Director of NHS London; Director of UCLB PLC; Chairman, the Bloomsbury Bioseed Fund, and he regularly serves as a non-executive director of biomedical start-up companies.

**A Woodhams**  
UCL Director of Finance  
(UCL Nominated Officer)

## Board of Directors



**Cengiz Tarhan**  
Managing Director, UCLB

An accountant by training, Cengiz specialises in the finance, intellectual property and commercialisation of university research. Cengiz became Director of Financial and Business Affairs for the UCL Medical School in 2000. Having set up Freemedic PLC as the commercial arm of the medical school in 1993, this became UCL BioMedica in 2002, the wholly-owned subsidiary of UCL responsible for biosciences at UCL and its associated Institutes. As Managing Director, Cengiz managed its transformation into UCL Business in 2006, and is now responsible for delivering a comprehensive commercial knowledge transfer support service for all UCL faculties. Cengiz has an enviable track-record with licence transactions and spinout companies. Successes include: PolyMASC Pharmaceuticals PLC, which was the first university-based company to float on AIM; the trade sale of Medic to Medic Ltd to Informa PLC and the sale of Stanmore Implants Worldwide Ltd to Abingworth and MDY Healthcare. Cengiz also acts as director for 10 spinout companies from UCL.

**D M M Dutton**  
Chair

**Sir I McAllister**  
Non-Executive Director

**P Reeve**  
Non-Executive Director

**G Samuels**  
Non-Executive Director

**Professor K Michael Spyer**  
Non-Executive Director



**Anne Lane**  
Executive Director, UCLB

Anne has a PhD in medicine from UCL and an Executive MBA from Molson Business School, Montreal. After research at UCL and Harvard Medical School, Anne worked for RTP Pharma Inc in Montreal, out-licensing and preparing valuations of the company's portfolio for public listing. Anne joined UCL Ventures in 2000 and acted as consultant for the National Technology Transfer Centre in the US. She is now Executive Director of UCLB, acts as director and interim CEO on several of UCLB's spinout companies, and oversees the company's licensing activity. Anne is also on the council of the Licensing Executives Society for Britain and Ireland.



**Hilary Rothera**  
Finance Director  
& Company Secretary, UCLB

Hilary qualified as a Chartered Accountant in 1992 when she joined the Royal Free Hospital School of Medicine. For the next 6 years Hilary was wholly responsible for the finance function of the Medical School. In 1998, Hilary was instrumental in managing the merger with UCL and she went on to work in the Finance Division, initially running taxation and commercial accounting until she became Deputy Director of Planning and Management Accounts in 2001. Hilary joined UCLB as Finance Director in 2006 and facilitated the merger between UCL Business and UCL BioMedica PLC.

## Specialisms



### Technology Transfer Engineering, Physical Sciences & Built Environment

#### Steven Schooling

Steven brings extensive experience of licensing and spinout company creation across areas ranging from ICT and petrochemicals through to medical devices and imaging to the UCLB team. He is an engineer by training with a PhD in process control engineering from Manchester Metropolitan University, which is complemented by industrial experience in the newspaper and process control industries and an Executive MBA from Manchester Business School. Steven is currently a director of five UCL spinout companies and represents UCL's interests in an IT-focused seed stage investment fund.



### Technology Transfer Biomedical Sciences

#### Richard Fagan

Rick is a cell and molecular biologist by training, gaining his PhD at McGill University, Canada. This was followed by a post-doctorate at the Imperial Cancer Research Fund, London, and then the National Institute for Medical Research. He left to join AstraZeneca as a team leader in the Dept. of Target Discovery, followed by a post as Senior Team Leader at Aventis Pharmaceuticals (Sanofi-Aventis). From Aventis he went to Inpharmatica as Associate Director of Target Discovery, with a business development portfolio. In 2006 he joined UCLB as Assistant Director BioPharm, becoming Director in 2007.



### Consultants

#### Susanne Westfold-Scott

Susanne has over 15 years experience in university research covering a range of contracts, from charitable to industrial organisations. She specialised in Japan in the early 1990's and later European consortia with their mix of university and industrial partners. Susanne joined UCL in 2001 to head up the Industrial Contracts office. In late 2002 she set up an independent consultancy company for the support and promotion of private consultancy work undertaken by UCL staff. Since then, UCL Consultants Ltd has managed over 1000 contracts with a total value of over £21 million, with both national and international clients.



### Project Management

#### Karen Cheetham

Karen previously worked in the Department of Surgery at the Royal Free Campus for 19 years, originally as Research Assistant in the field of organ transplantation and is co-author on many publications. She progressed to Laboratory Manager, responsible for managing the life cycle of numerous projects in the department over a period of 15 years and the organisational and strategic management of several joint hospital and medical school projects. Karen is a member of the Chartered Management Institute.

## Our Mission:

Supporting UCL, we aim to be the best university commercialisation group in the UK and globally.

## What Drives Us?

### Our First Aim: Fulfil Our Grand Challenges

The end point of all research and innovation at UCL is focused on a set of **Grand Challenges**, and the achievement of these is the great motivator for everything we do:

- 1 Global Health
- 2 Sustainable Communities
- 3 Intercultural Interaction
- 4 Human Wellbeing

This set of challenges form 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 path and an injection of capital. We believe in bringing expertise and experience into the mix to add real benefit, through financial and legal advice, intellectual property management, project management and marketing and communications support.

In our experience, this foundation of support is invaluable in ensuring more good ideas make the transition into marketable innovations.

***This is the Realisation of Research.***



# A Refreshingly Different Approach

## The Real Difference Lies in Our Approach to Commercialisation

If we believe in an innovation, we're prepared to invest the company's own capital to prove the concept and carry it through beyond proof of concept.

After all, if we want to encourage external investment, then we should be prepared to back it ourselves. By applying this approach, we not only demonstrate our commitment, our belief that the investment is sound, but crucially we can help to carry a project forward through critical milestones, even during periods when other sources of funding become harder to attract.

Carrying a project through to proof of concept or clinical trials can then mean access to new sources of internal and external funding, allowing a project to arrive at an exit either through product or process licensing, or as a spinout company.

To begin with, UCLB will work with the principal investigator to identify the merits and potential of the research area and once a potentially commercially valuable piece of IP has been identified, UCLB provides Business Manager support and initiates the patent process.

If the project requires funding to establish proof of concept, UCLB will then invest up to £50,000. Where a project requires more, we can invest from our own investment fund of £5 million, of which £1 million remains uncommitted.

At UCLB, our *modus operandi* is always very well defined, funding is milestone-driven and commercial partners are sought early on in the process to ensure that the development is well-matched to industry needs. Because of the way our developments are managed, the process of patent prosecution, and the identification of regulatory processes and suitable markets run in parallel.

Our goal is to develop projects that answer real needs and are formulated to maximise the potential for external funding from bodies such as the Wellcome Trust, the Medical Research Council, the Technology Strategy Board and the UCL/UCLH Comprehensive Biomedical Research Centre (CBRC).

At UCLB we license technologies that are close to market, but we also nurture those that are not, such as stem cell technologies, gene therapy and nanotechnologies, as these will sometimes need many years of development. This not only helps to preserve these fundamentally sound ideas that lack immediate commercial recognition, but has the added benefit of ensuring that our licensing pipeline is always full and progressing.



# Technical Development Process

## UCL Resources

From UCL we have access to a wealth of new ideas, a body of some of the finest academics and specialists anywhere in the world, and a consultative powerhouse that is virtually unmatched.



## Ideas

We gather commercially promising ideas from across UCL faculties and associated institutions. Where IP is generated, our legal services advise on strategy and protection of inventions.



## Proof of Concept

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



## 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.



## UCLB Resources

Within UCLB, we bring years of experience in technology entrepreneurship and commercialisation, including financial and legal expertise, marketing, administration, and project management support, delivered through a team of dedicated Business Managers.



## What Drives Us

Beyond the immediate desire to see technology answer the needs of industry and make a profit at the same time, we are driven by the same four **Grand Challenges** that underpin all research at UCL:

Global Health

## Time

### Exit

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



### Trials

We can help navigate funded projects through the trials stage, providing expertise and support through UCLH and other specialist trials facilities.



### Licensing

We'll 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, brand and promotion, incubate it and provide board-level support, as well as finding markets for its products and services.

### Collaborative Research

### Market



### External Publicity



### Consultancy



Sustainable Communities

Intercultural Interaction

Human Wellbeing

## **Encouraging External Funders to Get Involved**

UCLB has an enviable track record of securing external investment from a broad range of funding bodies. Thanks to our experienced commercialisation team, we know exactly how to present findings and potential in a way that will appeal to individual funding bodies. By building a close understanding of the priorities of funders we can ensure maximum success of funding applications. We regularly secure funding from several organisations, including:

- Wellcome Trust
- NHS/CBRC
- MRC
- Technology Strategy Board

## **Flexible Services to Fit the Needs of Business**

### ***Licensing Technologies***

If your business is seeking specific technology solutions, UCLB will provide the commercial expertise and legal and administrative support to broker licensing agreements, allowing companies to fully exploit unique technologies with the knowledge that exclusivity and market advantage are preserved.

Through UCLB, academics who wish 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 to commercialisation strategy and business plan development, contractual advice and formalisation to incubation support including recruitment of management teams and identification of investors, our services cover the entire process.

### ***Accessing Consultancy***

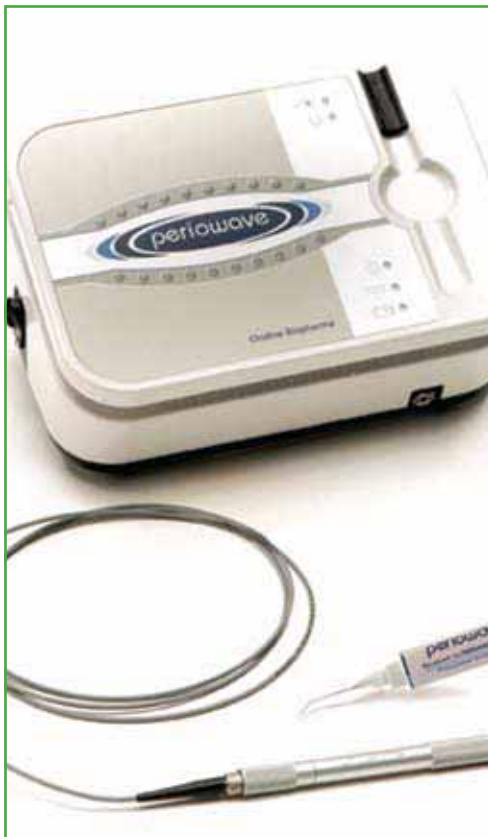
UCL Consultants Ltd (UCLC), in its role as the consultancy office of UCL, represents UCL staff undertaking private consultancy work for external organisations. UCLC contracts with industry, governments and global corporations, as well as public bodies and SMEs on projects that can range from a short-term, one-day consultancy, through to large multi-party projects.

UCLC is both the source of, and the gateway to, critical specialist knowledge available across all the university's departments. Our aim is to provide an efficient and responsive service to clients seeking help and advice in solving their technical problems.

## Innovation at UCL and UCLB:

### Applying Nanobiotechnology to **The Battle Against MRSA**

In October 2007 UCLB concluded an exclusive licence with Ondine for the human therapeutic use of a gold-nanoparticle photosensitizer developed at the Eastman Dental Institute at UCL. This light-activated anti-microbial represents a huge advance in photo-disinfection technology used to kill staphylococci. This exciting advance is the result of a successful ongoing collaborative effort, and there are great hopes that this compound could herald a major new development in the struggle against MRSA.



### Harnessing the Latest Media Technology: **Delivering Education over iTunes**

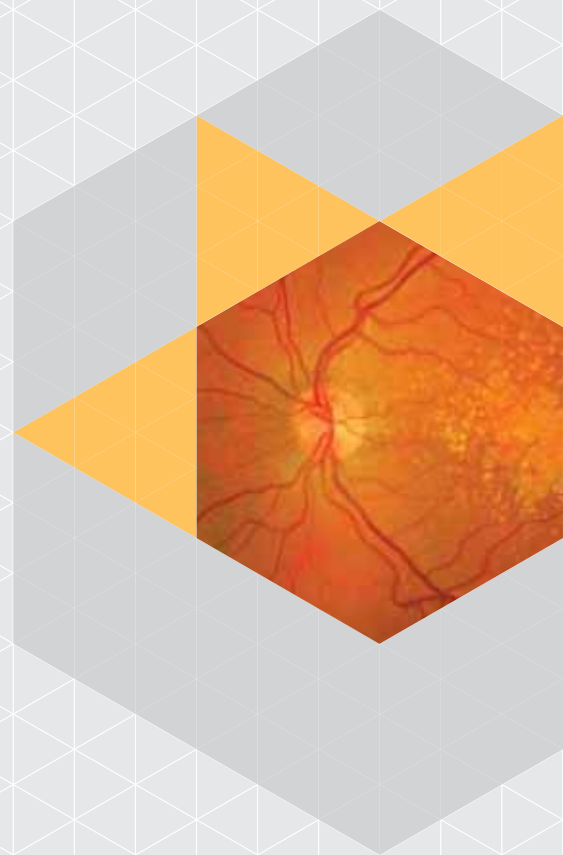
In June 2008 UCL announced a landmark agreement with Apple Computer's iTunes service which will deliver a significant step forward in extending UCL's educational impact on the world.

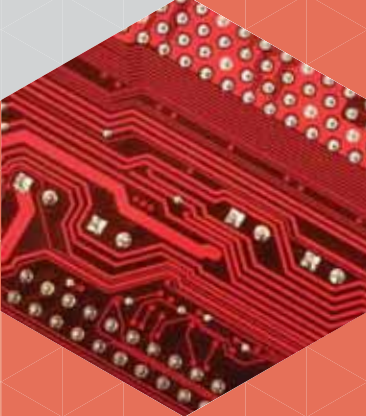
The launch of UCL on iTunesU now allows users to download lectures, interviews, seminars and news, and play audio and video materials on their iPod or computer. Prior to this deal only North American institutions had featured on iTunesU. Brokered with the assistance of UCLB, the new partnership between UCL and Apple makes UCL the first mainstream UK university (and one of only three European universities, with Trinity College Dublin and the Open University) to pioneer global participation in iTunesU.



## **Specialist Knowledge & Expertise**

UCLB focuses on a number of specific technology areas, allowing us to deliver expertise and understanding that makes us one of the most successful university commercialisation businesses today.





Engineering &  
Physical Sciences



Biomedical  
Sciences



Project  
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Consultancy  
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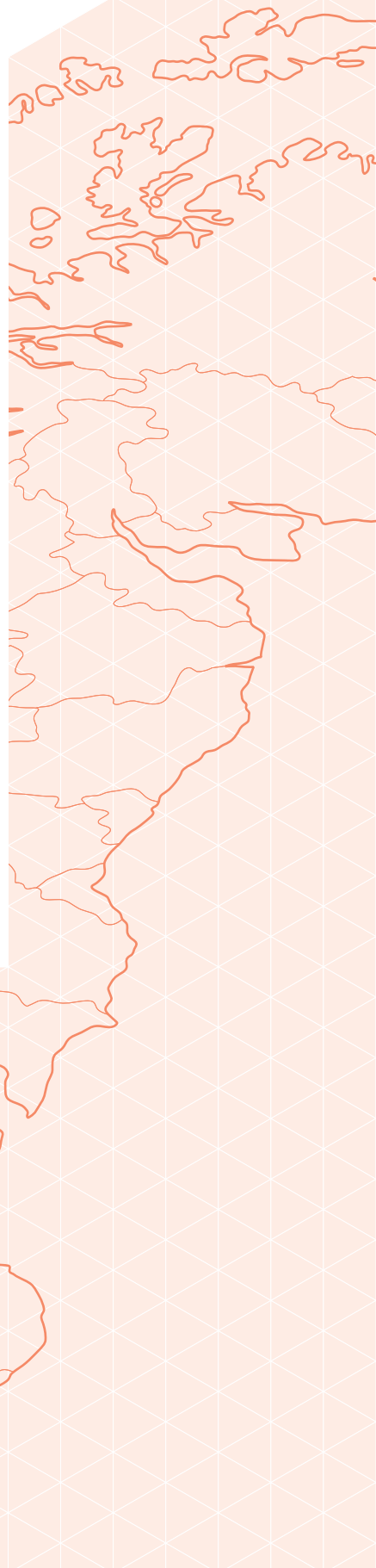
**Specialist Expertise:**

## **Engineering, Physical Sciences & Built Environment**

A major part of the knowledge transfer activities at UCL is focused on the faculties of Engineering, Mathematics & Physical Sciences and the Built Environment, complemented by projects from the Social & Historical Sciences and Arts & Humanities faculties. This provides a diverse and fertile knowledge base comprising over 1400 academic and research staff with a commitment to knowledge transfer evidenced by recent successes that you will discover as you read on.

Our project portfolio is constantly evolving and currently we offer opportunities in technology areas ranging from semiconductor devices to new software services and novel materials for energy storage. Furthermore, UCL's commitment to an inter-disciplinary research agenda is leading to a range of exciting opportunities emerging at the interface between disciplines. Collaborations between academics from life and physical sciences faculties in areas such as nanotechnology, have led to opportunities such as Endomagnetics, a spinout company that is showing great promise through the application of a magnetic sensing technology in breast cancer surgery. In the environmental area, the coupling of remote sensing expertise from the Faculty of Engineering with climate models developed in the Department of Geography are leading to development of new solutions for verification of carbon offsetting activities.

The experience of the Business Managers within the UCLB team has been critical in assisting in the development of these opportunities. Each member of the team has spent significant time working in both industry and academia providing them with the expertise to assist in the effective translation of UCL research for social and economic good. So if you are a UCL academic whose research results may have commercial potential or you represent a company or investor who may be interested in tapping into the diverse knowledge base of one of the UK's leading research-led universities, then please contact us.



## Supporting a High-Growth Spinout Company: **Senceive Ltd**

Senceive was spun out from the Department of Electronic and Electrical Engineering at UCL to address the needs of industries such as rail and the built environment for wireless-based infrastructure monitoring solutions. The distinctive capability of Senceive resides in novel communications expertise that is embedded across mesh-based wireless networks in order to provide a monitoring solution that is robust, highly scalable and cost effective compared to conventional 'wired' approaches to asset monitoring. Importantly it is easy to install and does not require specialist wireless expertise during configuration.

An early proof of principle implementation was developed using proof of concept funding from UCLB and an important development milestone was the securing of a paid trial deployment with Network Rail in 2007 to monitor earthwork embankments for early signs of slippage, as part of their 'Intelligent Infrastructure' initiative. After further product development activity, late 2008 saw the launch of Senceive's FlatMesh wireless monitoring product which enables hundreds of sensors to be "meshed" by radio on a large, distributed or remote asset such as a bridge, railway tracks or pumping-station with such information being fed back to the user through a GPRS capability. The company is currently working with partners across the rail, civil engineering and security industries in order to achieve widespread adoption of its mesh-based monitoring solution and high profile deployments include HMS Victory and the Tower of London.

UCLB has supported Senceive since its inception due to the significant market potential for wireless enabled industrial automation. The company's FlatMesh solution overcomes difficulties associated with Zigbee-based wireless solutions and results in a solution which has significant operational cost-savings over conventional wired monitoring solutions.



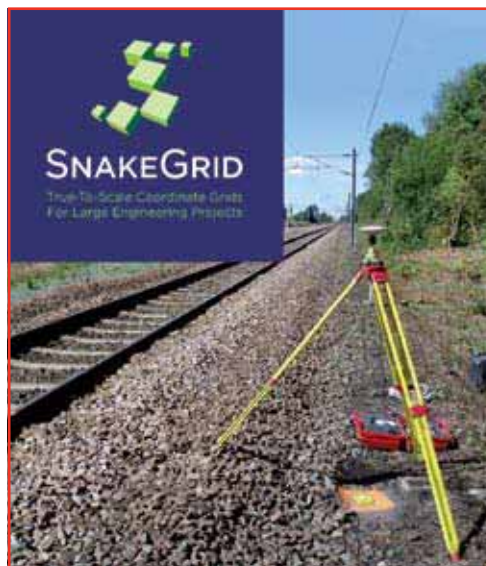
## Consultancy-Inspired Licensing: **SnakeGrid**

The SnakeGrid mapping software was originally conceived as a result of a consultancy project between Dr Jonathan Iliffe and Network Rail in connection with the West Coast main line upgrade programme. SnakeGrid provides an innovative solution to the surveying challenge of designing a coordinate system that has minimal scale factor and height distortions, even when a construction project extends for many hundreds of kilometres and is broken up into multiple sections.

Dr Jonathan Iliffe approached UCLB for assistance in assessing the wider commercial opportunities that the software may offer in railway, highway and pipeline applications. It was apparent that an enabler of wider commercial exploitation of the mapping software was an improved user interface and UCLB provided proof of concept funds to implement changes in the design and program structure of SnakeGrid. This has led to further utilisation in rail, such as the Dublin to Cork railway line which is currently being upgraded to permit high speed trains. Further negotiations are underway for the use of the software in major infrastructure development projects in the UK and around the world.

### Dr Jonathan Iliffe said:

**"I am delighted with the success of SnakeGrid; what started as a challenging consultancy project with Network Rail has developed into a product with real commercial potential. The support provided by UCL Business has been instrumental in helping to develop the software and explore other markets."**



## Partnering with the Insurance Industry to Create a Joint Venture Company:

### **Eurotempest Ltd**

Eurotempest Ltd is a joint venture between UCLB, Aon Benfield and RSA which provides insurance industry clients with information products for storm risk management. At the heart of the Eurotempest offering are a series of software based models that provide information on likely maximum wind gusts and potential wind damage, high precipitation events and extreme temperatures to a two-digit postcode resolution across the UK and Western Europe. Such information is used by insurers for tactical risk management, such as loss forecasting during and after a windstorm event and also for claims validation. The venture has secured several high-profile insurance clients since its formation in 2007 and by the end of 2009 it is expected that Eurotempest will be providing forecasts for insurers/re-insurers covering a third of UK homes.

#### **John Moore from Aon Benfield commented:**

**“The greatest insurance losses are due to wind storms and as the storm that hit Northern Spain and South Western France in January 2009 demonstrated, such events can cause tens of millions of pounds in damages. As weather zones vary enormously throughout Europe, the forecasts need to be as localised as possible and if Eurotempest has access to details of client’s insured portfolio, it can accurately predict likely risk from a given event.”**



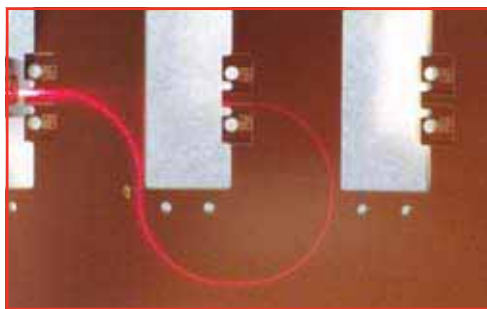
## Collaborative Research and Development Generates a Novel Optical Backplane Technology: **Storlite**

Light is used to transmit information over hundreds of kilometres through optical communication networks that link up continents and which have been at the heart of the ICT revolution. However inside the racks of servers, switches, routers and storage devices, information has traditionally been transmitted as electrical signals on a copper backplane which imposes limitations in respect of data transfer rates and RF interference issues.

Xyratex, as a leading provider of networked storage solutions, recognised that an alternative to copper was needed and in 2003 initiated a collaboration with David Selviah and colleagues from the Department of Electronic and Electrical Engineering at UCL to explore how photons (i.e. light) could be used rather than electrons to transmit high speed data inside the hardware of a data centre. Initial interactions were supported through DTI funding for a project called Storlite, which led to a proof of principle demonstrator which showed, through the use of polymer-based multi-mode waveguides and a novel connector linking light source to the waveguide, that it was possible for information to be transmitted at speeds of up to 10Gb/s within a backplane configuration. The intellectual property from the Storlite project has subsequently provided the foundations for a product development programme led by Xyratex in conjunction with Samtec, Varioprint, IBM Zurich and UCL. In March 2009 a prototype solution combining a Xyratex/Samtec/UCL designed connector, together with a backplane from Varioprint/IBM Zurich, successfully transmitted a 10Gb/s Ethernet signal between two interface cards connected by an optical waveguide link.

#### **Dave Milward from Xyratex commented:**

**“The collaboration between Xyratex and UCL has allowed the possibility of using light as the data transmission medium inside the Xyratex Storage Subsystem enclosure to be demonstrated.”**



Find more technologies for licence at: [www.uclb.com/technologydirectory](http://www.uclb.com/technologydirectory)

**Specialist Expertise:**

## **Biomedical Sciences**

UCL is proud to be one of the best biomedical universities in Europe. UCLB provides complete support for all biomedical-related commercial activities at UCL and works closely with UCL's partner hospitals to translate research into patient benefit.

The Biomedical Sciences team of Business Managers are all from biomedical backgrounds, and have the skills to turn new discoveries into licensable therapeutics. We achieve this by building value in our internal research projects, through proof of concept funding and investing UCLB money into selected research projects.

### Examples of projects currently in our pipeline:

- Preclinical/clinical development of a novel small molecule dimethylarginine dimethylaminohydrolase (DDAH) antagonist for treatment of sepsis.
- A novel, custom-built coded aperture system that detects the small phase shift of x-rays during imaging, resulting in high-resolution phase contrast images. This is being developed to produce superior imaging systems for breast mammography in the first instance.
- Preclinical development of a small molecule which depletes C-reactive protein (CRP) from the body for the treatment of myocardial infarction (MI) or stroke.
- An instrument which automates production of a skin-like material through compression of collagen and other materials. The skin-like material can be potentially used for a multitude of applications, from the development of a cornea substitute to use by the cosmetics industry to test novel compounds.
- Development of a novel early diagnostic method for glaucoma and other neurodegenerative disorders such as Alzheimer's disease.
- The London Project to Cure Blindness – this is a highly innovative programme utilising stem cells to cure age-related macular degeneration.
- Preclinical development of small molecule neuroprotective agents which act as selective blockers of voltage-dependent sodium channels. Two series have been identified which show significant neuroprotective activity in vitro and in vivo.
- A gene therapy clinical trial to cure a rare form of inherited blindness, Lebers Congenital Amaurosis.
- Small molecule peptidomimetic antagonists of the Nav1.7 sodium channel for the treatment of pain.
- A novel nanocomposite polymer with multiple applications, including breast implants, condoms, artificial arteries and cardiovascular stents.
- Development of novel small molecule, non-peptide agonists of the natriuretic peptide receptor (NPR)-C for the treatment of myocardial and cerebral ischaemic injury.
- Small molecule antagonists of the protein kinase B/Akt pathway (oncology) in conjunction with Imperial Innovations.

Some of our recent biomedical sciences success stories in further detail:

**Securing the Commercial Deal of the Year:  
Stanmore Implants Worldwide Ltd**

Stanmore Implants Worldwide (SIW) is an innovative orthopaedic business focused on saving and restoring the function of limbs and joints. It designs, manufactures and markets a custom implant service with a portfolio of orthopaedic implants for limb salvage and complex joint replacement, and is known for creating some of the world's most successful implants, including the Stanmore Hip.

In February 2008 UCLB announced the sale of Stanmore Implants Worldwide generating a net profit of £7.2m for UCL and UCLB. The company was spun out from UCL's Centre for Biomedical Engineering based at the UCL Institute of Orthopaedics. Actively managed through UCLB, it was acquired by a syndicate led by Abingworth Management and MDY Healthcare PLC. This transaction won the award for 'Commercial Deal of the Year' at the 2008 Knowledge Transfer Awards in London in December 2008.

Also in December 2008, The Times reported a compelling story of how a pioneering technology, known as the intraosseous transcutaneous amputation prosthesis (ITAP) enabling the attachment of clip-on prostheses to one's skeleton and skin without causing infection, has changed the life of a 7/7 London Bombings victim.

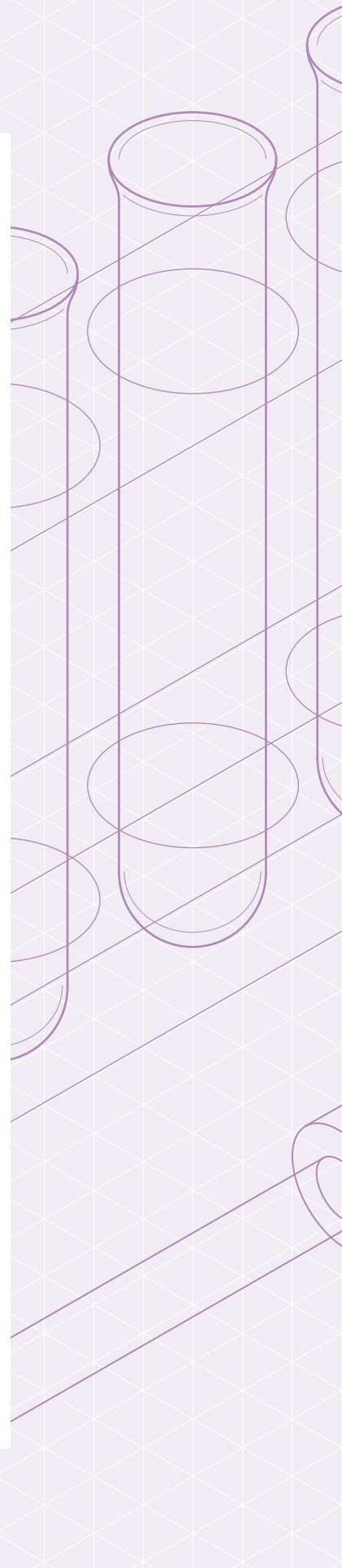
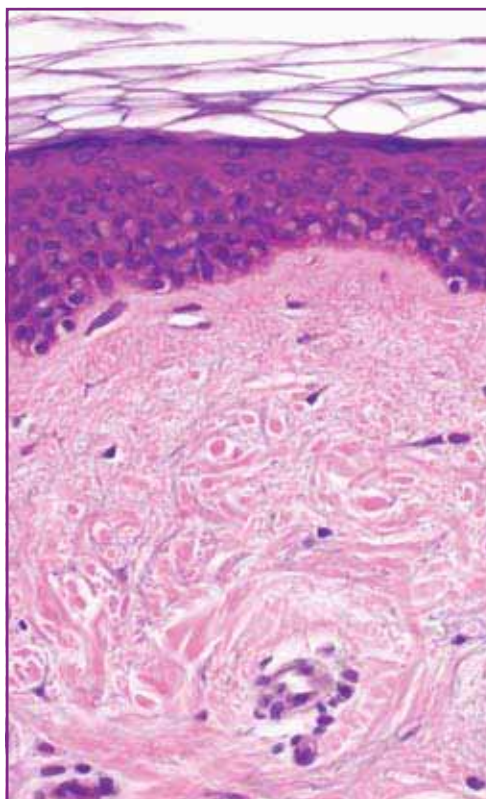


**Proof of Concept Funding Delivers a  
New Approach to Rapid, High-Throughput  
Tissue Fabrication: RAFT**

Researchers at the UCL Tissue Repair and Engineering Centre identified a revolutionary approach to tissue engineering – Rapid Automated Fabrication of Tissues (RAFT) (*J Tissue Eng Regen Med.* 2007 May-Jun; 1(3): 192-8.). Patents have been filed on a number of aspects of the work.

Critically, UCLB invested £25,000 of proof of concept funds in the project to enable production of a prototype machine (tissue fabrication device), which utilises the novel process and will allow development of a myriad of biomedical and industrial applications.

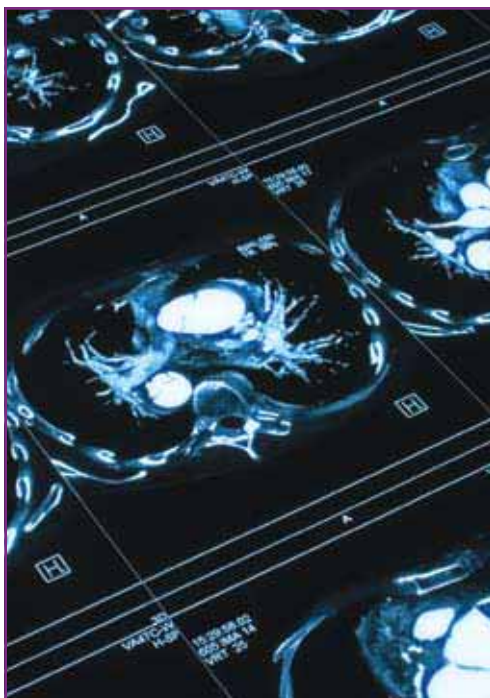
UCLB's decision to back this project was recently validated when the project was awarded a £1.7 million grant from the UK Technology Strategy Board to develop the prototype machine into an industrialised version in collaboration with the UK company Technology Automation Partnership.



**Discovery Leads to a Novel, Injectable Treatment for Advanced Liver Cirrhosis, Acute Liver Failure and Hepatic Encephalopathy: The Liver Failure Group**

Researchers at UCL Medical School's Liver Failure Group, have invented a new therapy for acute hepatic encephalopathy (AHE). The compound recently demonstrated that it directly reduces blood levels of ammonia, a highly toxic chemical that builds up in AHE.

AHE is a reversible neuropsychiatric abnormality frequently seen as a complication of acute liver failure and cirrhosis. With severe liver impairment, toxic substances such as ammonia that are normally removed by the liver accumulate in the blood and impair the function of brain cells. Signs of AHE include impaired cognition, uncontrolled movements and decreased levels of consciousness leading to coma. Cirrhosis, which can cause AHE, occurs due to a variety of causes such as hepatitis B and C infection, alcohol-abuse, and fatty liver, with an estimated 1 million cirrhosis patients in the U.S. alone. Acute liver failure is a life threatening condition in otherwise healthy patients and is most commonly caused by an overdose of paracetamol, or adverse reactions to other drugs.



The group, led by Professor Rajiv Jalan and the Liver Failure Group at the UCL Institute of Hepatology, had the opportunity to follow up potential formulations thanks to two rounds of vital proof of concept funding provided by UCLB, allowing the team to undertake efficacy and toxicology studies on the new formulation, leading to First in Man testing and the submission of a CTA to the MHRA.

This then triggered a major Medical Research Council Experimental Medicine grant to fund a clinical trial, and has allowed the therapy to be acquired under an exclusive worldwide licensing agreement by Ocera Therapeutics Inc., a US biotechnology company. Clinical trials in patients with AHE are due to be carried out at University College London Hospital as well as other centres in 2009 under further funding from the Medical Research Council. Ocera is planning to file an IND in late 2009 and US trials will begin in early 2010.



Find more technologies for licence at: [www.uclb.com/technologydirectory](http://www.uclb.com/technologydirectory)

**Specialist Expertise:**

## **Consultancy Services**

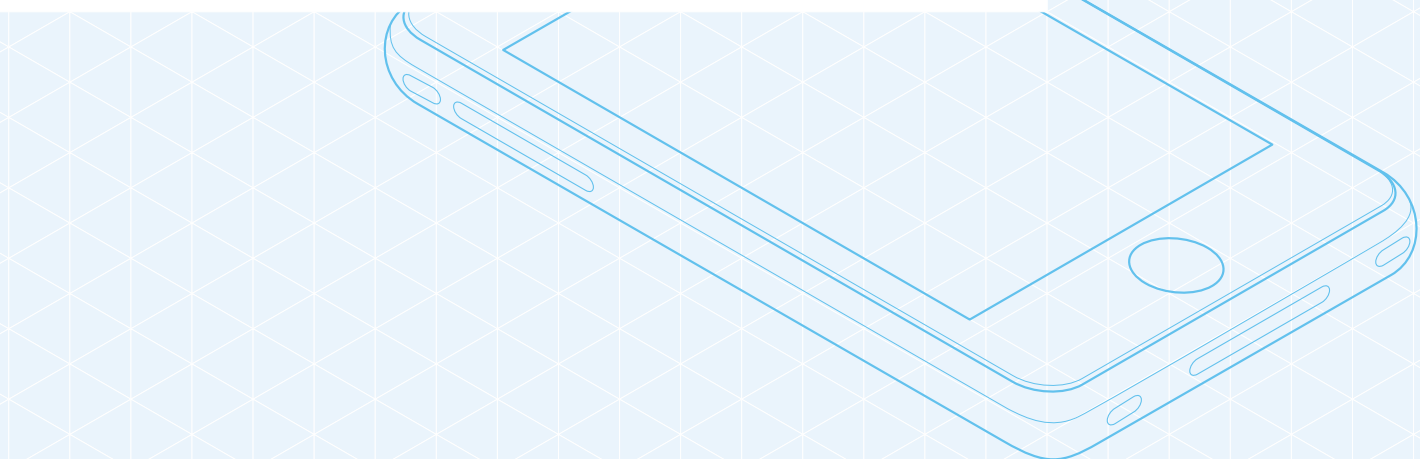


As a leading world-class research and teaching institution UCL academic staff offer cutting edge expertise based in world-class, specialised research facilities.

UCL academics are some of the most highly regarded in research and industry. Their expertise is very much in demand and they are often called on to provide help as expert witnesses and members of scientific advisory boards, to consult on commercial research projects and advise governments and other external organisations.

At UCL staff are encouraged to carry out private consultancy. UCLC provides a full financial and contractual service to support consultancy projects. Externally, UCLC can facilitate the provision of consultancy services to external organisations and is uniquely placed to identify and recruit UCL's experts as consultants.

Often working on problems close to the market place, UCLC offers a range of confidential services and expertise tailored to the needs of its clients, with contracts starting from one day to projects ranging over months and years, contracting with SMEs, national and international government and industrial organisations. Many larger projects are multi-party, drawing on UCL's wide range of cross-disciplinary expertise and national and international contacts.

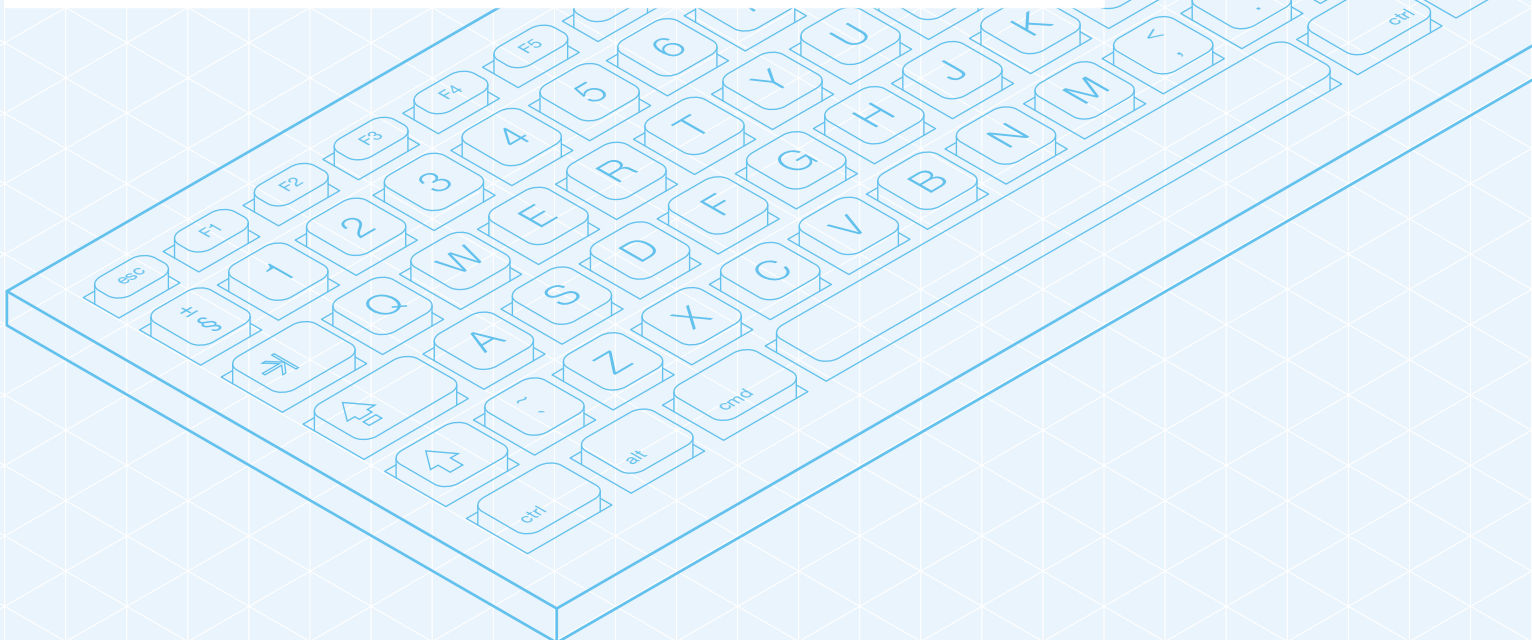




The areas of expertise and skills offered by UCLC include a broad range of consulting services encompassing science and engineering, medicine, architecture, the social sciences, environmental law and the humanities; engaging also with UCL's world renowned institutes of Neurology, Ophthalmology, Dentistry and Child Health.

UCLC has many long-standing consultancy arrangements with its clients, which often lead onto research and technology transfer opportunities. A short consultancy may be the seed of a research project or the conclusion to a research project providing critical, market-focused advice for commercial exploitation.

Consultancy can be the gateway to a long and fruitful collaboration between parties and is an ideal and flexible solution to answer some of industry's most market focused questions.



Just some of the tough questions that have been addressed through UCLC consultancy projects:

### **How Can We Improve Government PFI and PPP procurement?**

Consultants provided the opportunity for academics in the Bartlett Faculty of the Built Environment to work with part of the UK's local government advisory function to design and deliver a bespoke course on delivering the procurement of highly complex projects using the Private Finance Initiative (PFI) and Public Private Partnerships (PPPs). The course is known as the Project Director's Development Programme (PDDP), and it has ably demonstrated UCL's collaborative spirit, as it uses the knowledge and expertise of various UCL academics together with a significant contribution from those working in the area, whether from the public or private sector. With delegates enrolled on the course responsible for projects whose net present value totals in the billions of pounds, the opportunity to positively influence the outcome of these projects is very significant. Although designed primarily to develop the skills of those working in the UK, the course has attracted international interest with delegates from as far away as Latvia in its first year.



### **How Can We Minimise Fly-Tipping?**

That's the question the Department for the Environment, Food and Rural Affairs (Defra) asked UCL Centre for Systems Engineering (UCLse) to investigate. With local authorities being given the opportunity to trial incentive schemes to minimise non-recyclable household waste, Defra needed to provide formal guidance on how this could be achieved without triggering an increase in illegal waste dumping. Working with the Jill Dando Institute for Crime Science, UCLse applied a systems approach to the problem – investigating the opportunities and motivation for fly-tipping. The output of the consultancy was a guide for local government on how they should formulate a fly-tipping prevention strategy.



## How Effective is Rail Industry Training Across the UK?

The School of Construction and Project Management in the Bartlett Faculty of the Built Environment has conducted a review for the National Rail Academy of all education, development and major training programmes for the rail sector being offered in the United Kingdom.

The School of Construction and Project Management in the Bartlett Faculty of the Built Environment is working with Brookfield Europe, a major construction company, to ascertain how a behaviourally-based culture building programme to ensure health and safety could best be designed and implemented, in order to achieve the highest attention and commitment at all levels of the organisation, from director to site work-face. The project involves benchmarking best health and safety practices, promulgation and implementation in a number of leading construction organisations.



Find out more about consultancy services at: [www.uclconsultants.com](http://www.uclconsultants.com)

**Specialist Expertise:**

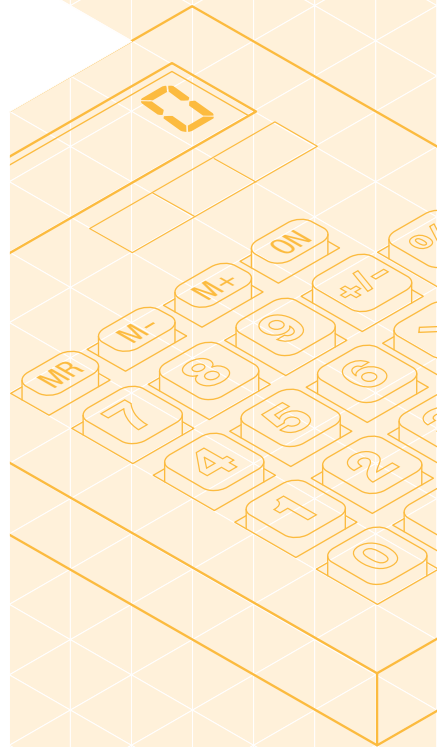
## **Project Management**

At UCLB we recognise that in addition to academic excellence, commercial success also depends on the ability to deliver results for all stakeholders concerned, on time, and as originally agreed.

UCLB has a dedicated team of experienced project management professionals who provide departments and institutes with a comprehensive project management service.

We provide staff who will demonstrate personal commitment and contribute to effective teamwork and who are equipped with the appropriate knowledge, contacts, expertise and experience to support either substantive single or multiple projects.

They will play an active role in the project team, assisting the Principal Investigator and Departmental Administrators in managing the full life cycle of the project and contribute to effective teamwork within the project group. They will maintain effective liaison with internal and external key people and organisations.



## Our Project Managers will:

- Lead project management activity to ensure that projects are delivered according to the project plan and funding allocations.
- Play an active role in project teams identifying potential troubleshooting issues early on and assisting the researchers in managing various aspects of the project.
- Maintain effective liaison with external and internal key people and organisations.
- Liaise regularly with and co-ordinate the project activities of involved parties including grant providers, external funding parties and relevant UCLB staff.
- Provide information and advice to the relevant Business Manager at UCLB necessary for them to make effective project-related decisions.
- Assist in negotiations for the handling of all arising intellectual property, and identify mechanisms for effective commercialisation, where applicable.
- Provide a continuing flow of information to the other project groups regarding general project developments and to respond to other project related queries.
- Ensure that the Principal Investigator has the information necessary for effective decision making.

The following case study illustrates precisely the positive impact that effective project management can have on the successful outcome of a project:

### The London Project:

#### Project Management Making a Difference

Age-related Macular Degeneration (AMD) is the leading cause of blindness in people over 60, and affects 25% of people in this group in the UK. There is currently no treatment for the dry form of the disease and limited treatments for wet AMD. The London Project to Cure Blindness is an initiative launched in 2007 by the UCL Institute of Ophthalmology, Moorfields Eye Hospital and the University of Sheffield to develop a stem cell therapy that will restore vision in people who suffer blindness through AMD. The project management team has been instrumental in co-ordinating every stage of development, liaising with internal and external stakeholders and providing the most efficient means of achieving the end goal – a cure for AMD.



Find out more about effective project management at: [www.uclb.com](http://www.uclb.com)

# What's Next for UCLB?

## A snapshot of what will drive us over the coming years

UCLB has achieved many milestones over the first years of operation, and we're already looking forward to the challenges ahead with an equally ambitious set of targets:

We'll be developing our **programme of investor events** to build on the highly successful **Investor Breakfast** series, offering even more insight to the investor community as well as the broader market place.

We'll be working hard to **extend the company's relationships with leading industrial groups**, including major pharmaceutical, engineering and construction companies. These relationships have already resulted in new sources of proof of concept funds, and we believe these relationships will continue to proliferate over the coming years.

Combining these sources of funding with ongoing interest from institutions such as the **Wellcome Trust**, the **Medical Research Council** and the **Technology Strategy Board** transational programmes, we aim to **develop more technologies for patient care**.

We are determined to maximise the positive momentum that we have built up through our unique process and growing list of success stories. With some great results posted and yet more exciting developments in the pipeline, we believe we can offer more innovations, services and advantages to more potential partners.

To coincide with the launch of **UCL's Energy and Environment Institutes and the new School of Energy and Resources** (in Australia) we have appointed a **dedicated Business Manager** to build relationships with industry in those sectors.

The financial downturn has emphasised the need for expert advice and innovative approaches to achieving economic success. **UCL Consultants will continue to highlight the academic excellence at UCL and facilitate industry's access to the university's experts.** We anticipate that consultancy will form a key part of UCLB's activities over the coming year.

UCLB also intends to become more involved in **improving UCL's graduate employment record** and will be developing programmes to achieve this goal.

# How To Find Out More

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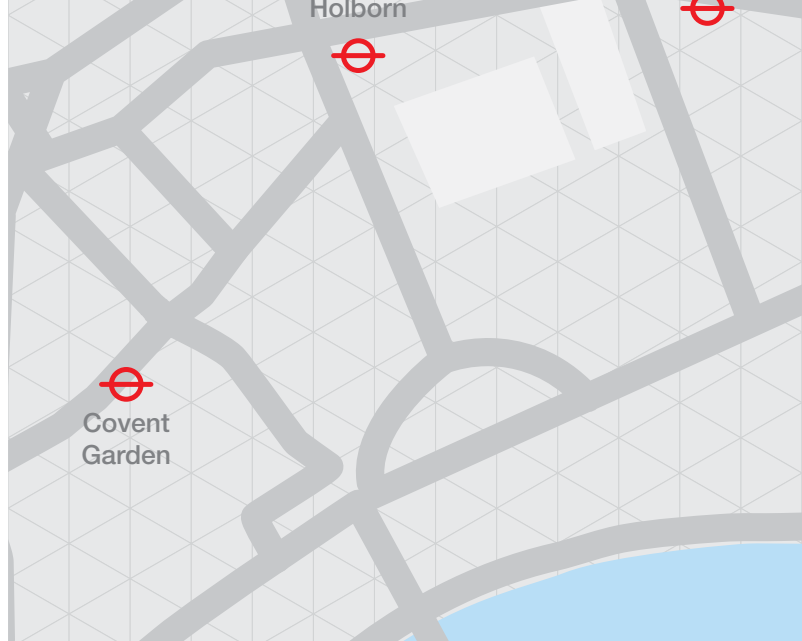
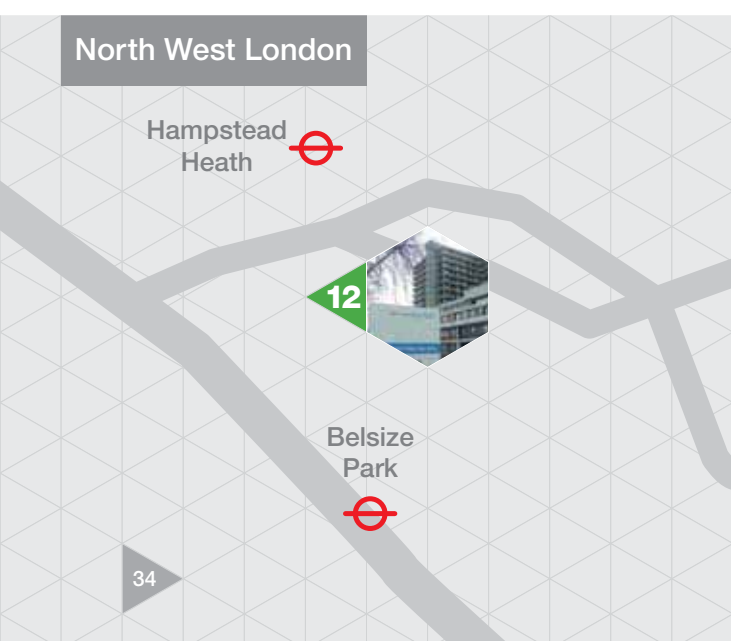
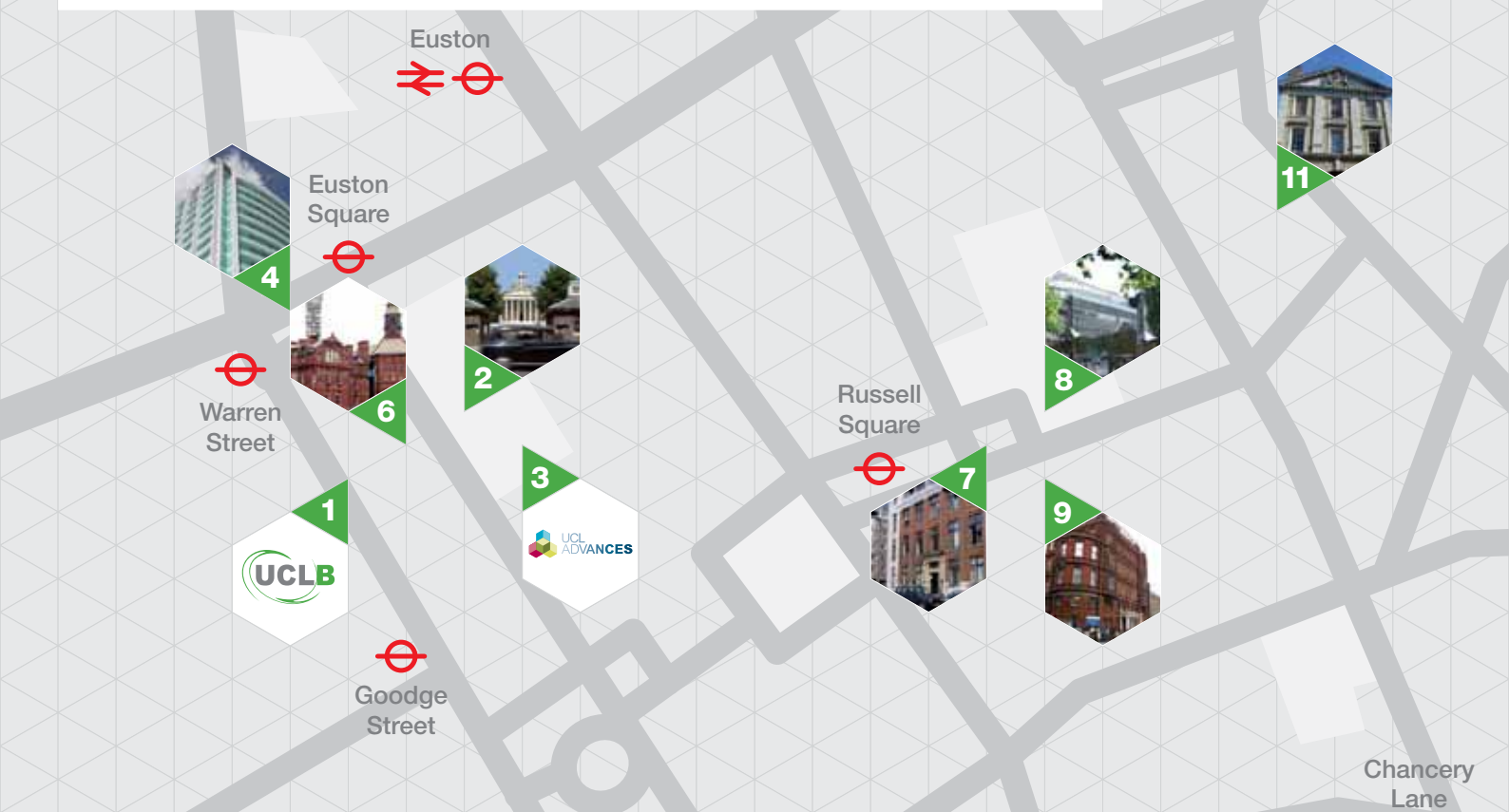
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# Acknowledgements

## We Couldn't Do It Without...

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:



Old Street



Farringdon



Barbican



Moorgate



Liverpool Street



- 2 University College London
- 3 UCL Advances
- 4 University College Hospital
- 5 The UCL Institute of Ophthalmology
- 6 Wolfson Institute for Biomedical Research

- 7 The UCL Institute of Neurology
- 8 The UCL Institute of Child Health
- 9 Great Ormond Street Hospital
- 10 Moorfields Eye Hospital
- 11 The UCL Eastman Dental Institute
- 12 Royal Free Hospital



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