



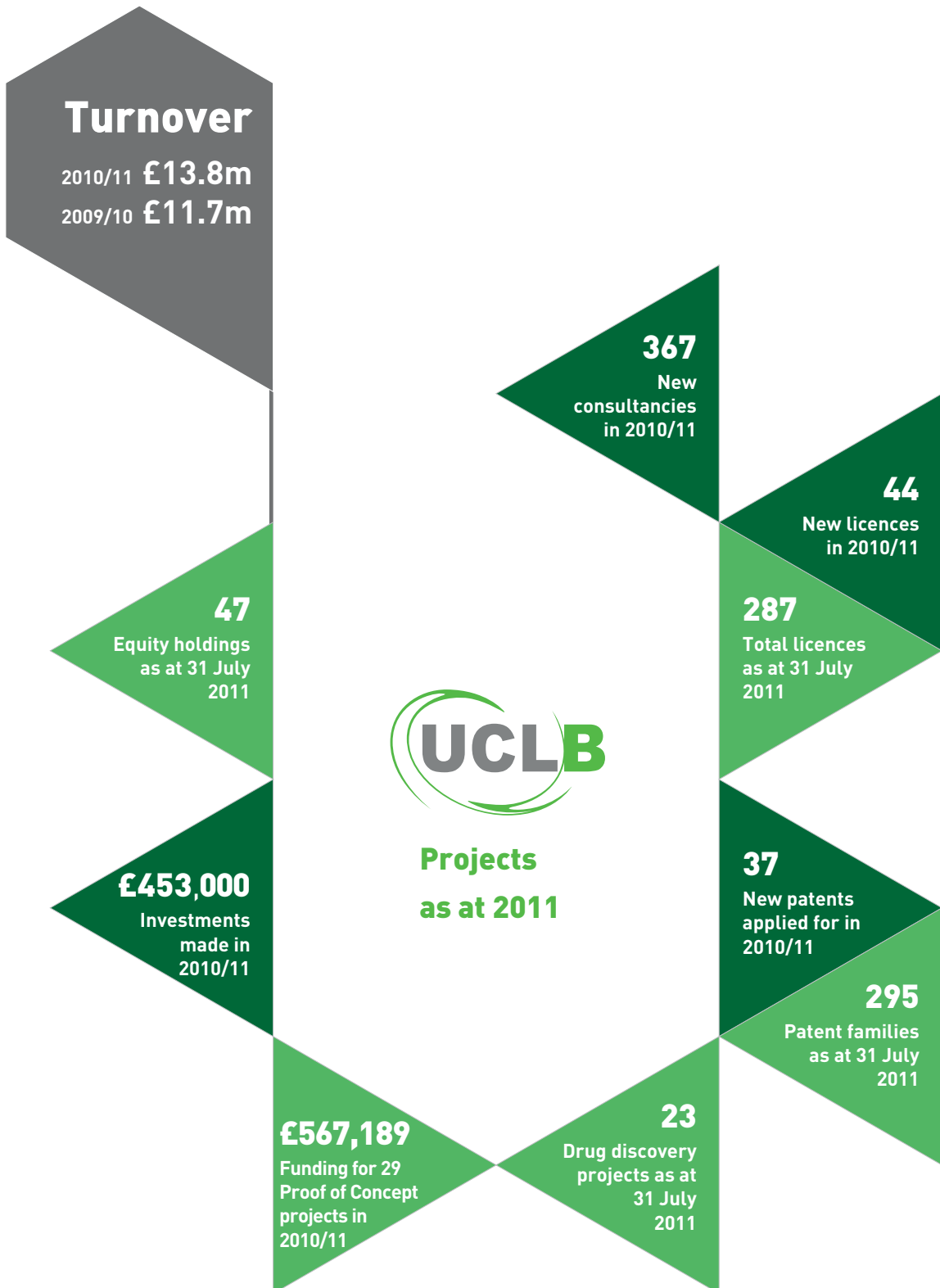
The Realisation of Research



# ANNUAL REPORT

## 2010/2011

# PROJECTS AS AT 2011



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## MESSAGE FROM **CENGIZ TARHAN**



### UCL Business helps UCL deliver on its Enterprise Strategy and enables 'the realisation of research'

2010/11 completes our fifth year as UCL Business. Our mission remains focused on supporting UCL and UCL's researchers with a comprehensive range of commercialisation and associated services, from private consultancy through to developing and investing in novel ideas, to enable the realisation of UCL's research for the benefit of humankind.

Commitment to our mission and a desire to deliver outcomes with benefit to society and benefit to the economy, whilst generating financial returns, are the three guiding principles we seek in every one of our projects. UCL Business strive to deliver societal benefits, as these are core to the mission of UCL, its Grand Challenges and its charitable objectives. UCL Business strive to deliver economic benefits, as innovation remains a key component for the recovery of the economy. We also secure positive financial returns that enable us to cover our costs and to do more. When we generate profits we donate these to UCL and help to support many worthwhile educational and research activities, as well as reinvestment into future commercialisation opportunities.

Our financial results for the year have improved significantly with a combined turnover of £13.8m (2010: £11.7m) and profit before gift aid to UCL of £1.8m (2010: £1m). The UCLB portfolio now numbers 614 (2010: 560) and comprises spinout investments, licensed intellectual property and projects under development. We know many of these carry significant value not only in financial terms but also in terms of future impact on the world around us, the environment and our lives.

2010/11 has not only been good financially but it has also demonstrated how many of our activities past and present have continued to make an impact. Our highlights this year include a new partnership with Becton Dickinson, where we are working to bring novel clinical diagnostics for ovarian and breast cancer to market; collaborating with both Astra Zeneca and separately Pfizer to pursue sight-related stem cell research; and strengthening our partnership with GSK through our subsidiary Pentraxin Therapeutics with another collaboration and licence agreement, this time targeted at a treatment for TTR, a rare but fatal disease. Amongst our spinouts, Canbex

Therapeutics (developing a treatment for muscle spasticity associated with multiple sclerosis and other neurological disorders) and Endomagetics (providing better diagnostics for breast cancer) have raised significant funds and we have established Abcodia Limited, a company dedicated to identifying biomarkers to enable rapid identification of diagnostics for many fatal and debilitating diseases. Our physical sciences portfolio now includes a licence transaction with Linde for a process to separate and purify carbon nanotubes. Many of our other projects are showcased throughout this report.

2011 also saw Amgen acquire Biovex in a cash deal worth \$1bn. This UCL spinout owed its origins to technology developed at UCL in 2000 and the subsequent efforts of the co-founders, Professor David Latchman and Dr Rob Coffin. More recently, the novel polymer we are developing with Professor Alex Seifalian and his team was used to construct a synthetic windpipe (front cover image), which was seeded with the patient's own endothelial cells and transplanted at the Karolinska Institute, as the first of its kind. These are two very different examples of 'the realisation of research'.

Recent changes within UCL and the publication of the new UCL Strategy for Enterprise now means there is better recognition for the need to embrace Enterprise activities in its widest sense across UCL. This is a very positive move and we expect it to strengthen our purpose and enable us to achieve more.

UCL Business is not only reliant on the efforts of our dedicated staff, directors, research funders, collaborators, advisors and business partners but most importantly it relies on UCL's researchers as the initiators of new and original ideas and with whom we are privileged to work.

As we end the first five years of activity as UCL Business, I would like to thank all those who have worked with us over this period and look forward to embarking on the next.

A handwritten signature in black ink, appearing to read 'Cengiz Tarhan'.

**Cengiz Tarhan**  
Managing Director



MESSAGE FROM  
**PROFESSOR STEPHEN  
CADDICK,**  
UCL'S VICE-PROVOST  
(ENTERPRISE)



**UCL Business:  
supporting enterprise at UCL via  
world-class technology  
commercialisation**

It has been another immensely successful year for UCL, and UCL Business continues to demonstrate not only its effectiveness as a technology transfer company, but also its ability to deliver value to the core mission of enterprise at UCL.

A highlight of the past year has been the development of our new five-year Strategy for Enterprise and we expect over the next five years to achieve the following:

1. Double the volume of enterprise activities with business.
2. Establish at least one major thematic area of sustainable enterprise activity in every department, faculty and in the UCL Grand Challenges.
3. Support at least 500 new businesses from the UCL community.
4. Double the income from enterprise activities.

There are some who ask why we in universities should engage in enterprise activities. Firstly, world-class universities have a key role in delivering sustainable economic growth and prosperity. Secondly, enterprise enables societal impact, which is at the heart of much academic endeavour. Finally, enterprise activities allow us to more effectively fulfil our academic mission in teaching and research.

The strategy has been well received and there has been particular interest in the idea of supporting 500 new businesses, especially with the focus on student businesses and start-ups. This may seem ambitious but of course it represents a few businesses per department so should be achievable!

It is also important that enterprise is embedded into all departments, particularly in areas such as Arts & Humanities, where it is perhaps not so obvious to find commercialisable projects. However, we were delighted to see the success of the Interactive Grammar of English (iGE) iPhone app, developed by the UCL Survey of English Usage (SEU) in collaboration with UCL Business, which is aimed at students in higher education and those for whom English is a second language. It provides a dynamic learning environment with constantly changing examples written by UCL researchers. The Director of SEU, Professor Bas Aarts, hopes that through further collaboration with UCL Business, punctuation and spelling apps may follow.

UCL Business is central to the delivery of our ambitious enterprise plan and once again, in the last year, has continued to deliver a combination of financial profitability and societal impact.

Sustainable energy is a key theme in UCL's Grand Challenges and the recent launch of the Electrochemical Innovation Laboratory (EIL) will help the institution to stay at the forefront of this area. The laboratory aims to encourage collaboration and knowledge transfer between academics and industry, and promote new forms of engagement with prospective partners. CMR Fuel Cells has been spun-in by UCL Business as a partner, sharing its expertise with UCL's researchers to develop low-cost fuel cells for greener energy use.

Overall it has been yet another great year and with all of the exciting initiatives and projects underway, progress is set to continue in 2012. I look forward to seeing further successes from UCL Business as an integral part of UCL's world-class enterprise activities.

A handwritten signature in black ink that reads "Stephen Caddick". The signature is written in a cursive style and is underlined with a single horizontal line.

**Professor Stephen Caddick**  
Vice-Provost (Enterprise)

# WHAT WE DO

UCL Business PLC (UCLB) is responsible for technology development and commercialisation transactions for UCL.

Offering world-class expertise in areas from live 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.

**'The resources and expertise of UCLB are extraordinarily high... their expertise is priceless and absolutely invaluable.'**



Professor Sir Mark Pepys is the Head of the Division of Medicine at the Royal Free Campus of UCL's Medical School, and is Founder and Director of Pentraxin Therapeutics Limited.

Professor Sir Mark Pepys was the recipient of the UCL Business Award at the UCL annual Enterprise Awards.

## 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.

## Providing expert consultancy

UCL Consultants Ltd (UCLC) is the consultancy office of UCL, representing 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 the university's 72 departments. Our aim is to provide an efficient and responsive service to clients seeking help and advice in solving their technical problems.

## 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, business plan development, contractual advice and formalisation, and through to incubation support, including the recruitment of management teams and identification of investors, UCLB's services cover the entire process.

## 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 principal investigator and departmental administrators in managing the full life cycle of the project, and contribute to effective teamwork within the project group. 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.



# OUR MISSION

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



**Directors**

## Board Members



Mr David Dutton  
Chairman



Mr Cengiz Tarhan  
Managing Director



Dr Anne Lane  
Executive Director

## Non-Executive Directors



Prof Stephen Caddick



Sir Ian McAllister



Mr Patrick Reeve



Dr Gill Samuels



Prof Sir John Tooke

## Other



Hilary Rothera  
Company Secretary



Mrs Alison Woodhams  
UCL Nominated Officer

**Directors** (left to right) Dr Richard Fagan, Director of Biomedical Science; Mr Cengiz Tarhan, Managing Director; Dr Anne Lane, Executive Director; Hilary Rothera, Director of Finance and Company Secretary; Karen Cheetham, Director of Projects; Dr Steven Schooling, Director of Engineering, Physical Sciences, Arts & the Built Environment.

## 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

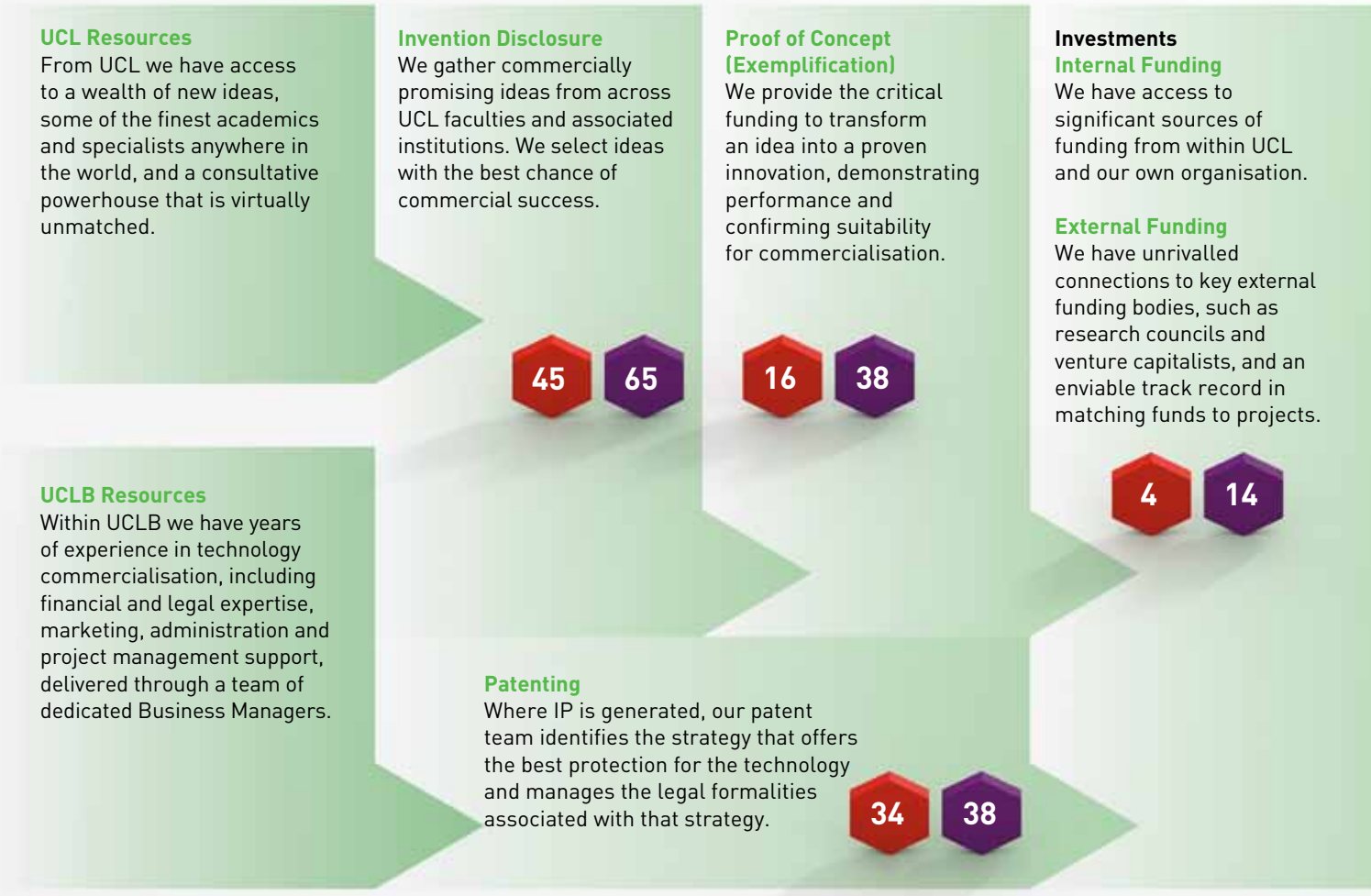
At UCLB we believe it is not enough to simply deliver a technology transfer. We believe in bringing expertise and experience into the mix to add real benefit, through financial investment, strong intellectual property (IP) strategy, project management, prototype design, securing regulatory pathways and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

This foundation of support is invaluable in ensuring 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 2011.



**Key:** Total number of active projects per phase



Engineering, Physical Sciences, Arts & the Built Environment



Time

### Exit (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.

18

50

### Project Management

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

39

156

### 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 facilities.

20

25

### 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.

30

Market

External publicity

Consultancy

367



Biomedical Sciences



Project Management



Consultancy Services

# SPECIALIST EXPERTISE ENGINEERING, PHYSICAL SCIENCES, ARTS & THE BUILT ENVIRONMENT



## OUR PROCESS:

Invention

Patent

Exemplification

**A Marketing and  
Negotiation**

**B Licence | Spinout**

Investment |  
Co-Development

**C Market**

## A

### Suits U

Inspired by his own experience of having to choose from a vast range of glasses frames, with little confidence in his ability to select the pair best suited to him, Dr Lewis Griffin, Senior Lecturer in the Department of Computer Science and Joint Director of the CoMPLEX MRes, has applied his own sector expertise in Computer Vision to develop the Suits U software.

The Suits U prototype comprises two main components. To the user, it is a fun and simple interactive front end on a website or in-store iPad, in which a sequence of frame choices are presented, superimposed on a photo of the user's face. Taking into account the user's selections, the system then presents the most suitable choice, selected from the retailer's entire database (typically upward of 1000 pairs).

However, this seemingly simple process belies a novel intelligent core, which includes complex machine vision algorithms acting together with substantial proprietary embedded knowledge regarding the factors influencing personal choice. This knowledge is experimentally gathered using machine learning techniques to determine the complex interaction between the aesthetics of glasses, face shape, personal taste and fashion trends.

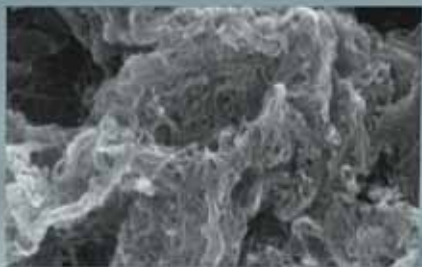
Developed under London Development Agency Proof of Concept funding awarded by UCLB, Dr Griffin and Marina Santilli, Senior Business Manager at UCLB have since demonstrated the prototype to several of the largest high street and online retailers, with consistently enthusiastic feedback. The problem identified in high street stores is that a greater choice of product has led to longer browsing and selection time, resulting in increased demand on sales staff. Meanwhile, online retailers face the challenge of improving the navigation experience where the inventory is mainly hidden within a list of category tabs. Suits U is expected to alleviate both of these problems.

A follow-on Proof of Concept award will take the patented prototype to an installable demonstrator product in early 2012, when it will be implemented under licence for first customer trials.



Dr Lewis Griffin and Mrs Marina Santilli





## B

### Linde Group Funds Research into Single-Wall Carbon Nanotube Technology

Single-wall carbon nanotubes (SWNTs) offer excellent electronic and mechanical properties, making them suitable for a vast range of potential applications ranging from supercapacitors to touch-screen displays.

Current methods of production result in SWNTs that are typically highly agglomerated and contain a mixture of metallic and semiconducting species. However, to be of most use in commercial applications the nanotubes are required to be individualised and purified. Current techniques used to deliver the required level of purity are restricted to producing very small amounts (typically only micrograms) and also often result in damage to the nanotubes.

A research team from the London Centre for Nanotechnology, consisting of Dr Chris Howard, Professor Neal Skipper (both UCL), Professor Milo Shaffer and Dr Sian Fugolen (both Imperial College), have developed a novel process to separate and purify SWNTs. This sonication-free enrichment process relies on the selective reduction of SWNTs in liquid ammonia. The SWNTs accept solvated electrons and spontaneously de-bundle. The process is high yielding, cost-effective and commercially scalable, thus addressing a key gating factor in the successful commercialisation of these unique materials.

The original research was supported by the Engineering and Physical Sciences Research Council and resulted in a number of patent applications filed by UCLB. Later development work and process optimisation was funded by the Linde Group, a world-leading supplier of industrial, process and speciality gases. Early in 2011 Dr Tim Fishlock, Senior Business Manager at UCLB, helped to exclusively license the process to Linde for scale-up and manufacture. This transaction promises to herald a new phase of SWNT exploitation and commercial development.



Professor Neal Skipper, Dr Chris Howard and Dr Tim Fishlock

## C

### A Breakthrough in English Grammar Learning

During the summer of 2011 Dr Steven Schooling, Director of Physical Sciences, Engineering, Arts & the Built Environment at UCLB, working in conjunction with Professor Bas Aarts and Mr Sean Wallis, UCL's Survey of English Usage, launched an innovative iPhone app: the Interactive Grammar of English (iGE). It provides a complete interactive course in English grammar, enabling English language students to develop their knowledge and skills more effectively, and was targeted at students studying the English language at secondary school, high school or university, as well as those who are studying English as a second or foreign language.

The app was developed in response to students and teachers who said that many existing learning tools, whether paper-based or interactive, often fail to meet their English language learning needs. Teachers and students are given advice about grammar that is often dated, confusing and, in some cases, highly misleading. The app offers students the opportunity to practise their language skills and study English whenever they want and wherever they are, with further apps for punctuation and spelling planned for the near future.

The app distinguished itself from other English grammar learning materials in that the exercises within the app arise from excerpts of actual spoken and written English and are presented in a manner that provides users with a dynamic and exciting learning environment in comparison to student textbooks, which typically use fixed (i.e. 'hard-wired') and artificial examples.

With the market for English language learning tools being worth hundreds of millions of pounds per annum, with significant growth in overseas markets such as South-East Asia, driven by mobility and employment trends, UCLB expect the app to be a valuable resource for both students and teachers across the world. It also demonstrates UCLB's commitment to knowledge transfer in areas such as Arts and Humanities, and provides a bridgehead for further app-related developments across UCL.



Professor Bas Aarts, Mr Sean Wallis and Dr Steven Schooling



**OUR PROCESS:**

Invention

Patent

Regulatory Pathway

**A Exemplification**

**B Pre-Clinical**

**C Pre-Clinical**

Phase I

Phase II

Phase III

Market

**A**

**Development of a Novel Mammography System Based on X-ray Phase-Contrast Imaging**

Professor Robert Speller, Dr Alessandro Olivo and colleagues from UCL are developing a novel phase-contrast x-ray technology that represents a significant improvement on conventional x-ray imaging due to the substantially increased visibility of fine detail.

UCL's refraction-based imaging converts phase effects into image contrast by means of a system sensitive to deviations in the directions of the x-ray beam. A conventional x-ray source fitted with offset pre- and post-sample coded masks can select the portions of the x-ray beam actively contributing to the deviated signal, maximising signal detection and filtering out background noise.

In particular, the technology has shown improved image quality and diagnostic potential when applied to mammography. The UCL team has received a Wellcome Trust Translation Award to develop a fully functional prototype machine, and is currently collaborating with radiologists and pathologists to establish and quantify the technique's improved diagnostic capabilities.

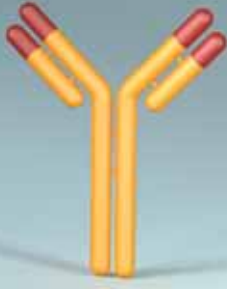
Conventional x-ray imaging technology relies upon the differential absorption of x-rays. However soft mammary tissue has poor absorption and so breast images suffer from bad contrast, resulting in low-quality images. Small changes in soft tissue such as those that occur in breast cancer do however cause a significant phase change in the x-rays. UCL's system can detect this phase change, giving better image quality than today's mammographic systems and leading to improved diagnosis. As well as applications in medical imaging, this technology has applications in industrial inspection and security screening.

Dr Chris Williams, Business Manager at UCLB is managing three patents filed on this technology and is supporting the academics involved with the project.



Professor Robert Speller, Dr Alessandro Olivo and Dr Chris Williams





## B

### Development of a Therapeutic Antibody for a Novel Angiogenic Target

Neovascularisation and vascular remodelling are key clinical features of several pathologies, including wet age-related macular degeneration (AMD), diabetic retinopathy and solid tumours. Regulation or inhibition of vascular changes in these conditions has been shown to slow or arrest disease, but the number of anti-angiogenic therapeutics available is limited, their efficacy is patchy and the field is constrained by the paucity of useful molecular targets.

Professors Stephen Moss and John Greenwood at the UCL Institute of Ophthalmology have identified an extracellular protein of previously unknown function, and have shown it to be a potent regulator of angiogenesis. The protein is pro-angiogenic in vitro, its activity can be blocked by specific peptides and knockout mice exhibit reduced vascularisation.

Retinal vascular disease in the form of neovascularisation and breakdown of the blood-retinal barrier is a major cause of photoreceptor death in diseases such as AMD and diabetic retinopathy. Current treatments attenuate vascular disease by inhibiting the actions of vascular endothelial growth factor, yielding benefits in over 50% of patients, but with non-responders representing a continuing unmet need.

Professors Moss and Greenwood have received a grant from the MRC Developmental Pathway Funding Scheme to develop a humanised antibody against the target. It will then be progressed to the clinic for subsequent evaluation in clinical trials, with the ultimate aim of developing a new biological treatment of ocular vascular disease. In the future, therapeutic monoclonal antibodies against the target may also be used in the treatment of non-ocular diseases in which vascular remodelling and/or angiogenesis play a role, including cancer and psoriasis.

Dr Rachel Hemsley, Senior Business Manager at UCLB, works closely with the academics and ensured a patent of the technology was filed in 2009 to protect the project. UCLB supported the initial exemplification of the patent through £71K of proof of concept funding.



Professor Stephen Moss, Professor John Greenwood and Dr Rachel Hemsley

## C

### Preclinical Development of VSN16R: A Potential Treatment for Muscle Spasticity

Canbex Therapeutics Ltd is a spinout company from UCL focused on developing a new treatment for spasticity in multiple sclerosis. The lead compound VSN16R, developed in the lab of Professor David Selwood, is a novel, orally active small molecule that is effective against spasticity in the EAE mouse model of multiple sclerosis and substantially more tolerable than existing agents, which is a key competitive advantage. Ongoing work is being performed in the labs of Professor Selwood at UCL and Professor David Backer at Queen Mary, University of London, both of whom are Directors of Canbex.

Multiple sclerosis is a progressive and debilitating chronic disease that represents a major pharmaceutical market, with projected global sales of MS biologics reaching US \$8.8 billion in 2008 (source: reported company sales). Most MS patients experience spasticity (the uncontrolled movement of limb and other musculature) and treatment options are poor. Spasticity interferes with daily activities such as walking, it can cause serious joint damage, and in the severest cases is completely disabling.

Key points of VSN16R include:

- + Efficacy without dizziness or flaccidity
- + Orally active
- + Good safety and selectivity profile, no hERG signal, no significant haemodynamic effects
- + Low manufacturing cost
- + Non-immunosuppressive

Canbex has received funding from Fast Forward, the investment arm of the National Multiple Sclerosis Society of the US, and the Wellcome Trust to develop VSN16R through the preclinical toxicology studies and a Phase 1 first-in-man clinical trial. Canbex plans to be in the clinic in late 2012 and, following the Phase 1 clinical trial, aims to license the programme to a pharmaceutical company in order to bring this novel and exciting treatment to market.

Dr Abbie Watts of UCLB works closely with Professor Selwood and his team and is the UCLB-nominated Director on the board of Canbex.



Professor David Selwood and Dr Abbie Watts

## PROJECT MANAGEMENT



### OUR PROCESS:

Conceptual Design

Prototype Development

Regulatory Pathway

#### **A Pre-Clinical**

Phase I/II  
Clinical Trials

Phase III/IV  
Clinical Trials

#### **B MHRA/FDA Approval & CE Marking**

**C** Market Research  
Pricing/**Manufacture  
Distribution**

#### **A**

##### **First Synthetic Trachea Organ Transplant**

Professor Alex Seifalian and his team at UCL have created the world's first completely synthetic trachea from UCL's patented nanocomposite material (front cover image), which has superior characteristics and is biocompatible to ISO 10993.

The transplant operation was carried out in Sweden at the Karolinska Institute, where the synthetic windpipe was placed into a patient whose own had been damaged by cancer. The 36-year-old cancer patient is recovering well and has not reported any complications three months after the operation.

Prior to surgery, the synthetic windpipe had been placed into a bio-reactor, which contained adult stem cells taken from the patient's bone marrow. The porous nature of the nanocomposite material allowed the windpipe to be seeded by the patient's tissue. In effect, the synthetic windpipe became the patient's own, which eliminated the need for the patient to take anti-rejection drugs.

Using this technology, a custom-made windpipe can be made for patients within days, thus eliminating the time delay in waiting for a donor organ to become available.

Jaspal Kaur-Griffin, Senior Project Development Manager and Dr Alexa Smith, Senior Business Development Manager at UCLB worked closely with Professor Seifalian and his team in ensuring that rigorous testing of the nanocomposite material was carried out to ensure its biocompatibility. The team works closely with academics and clinicians by providing regulatory support, product development and prototype build through to Phase I clinical trials, in order to ensure that these products reach the market in as short a time as possible, bringing benefits to patients and revenue to UCL.



Professor Alex Seifalian, Mrs Jaspal Kaur-Griffin and Dr Alexa Smith.





## B

### RetVas (Retinal Vasculature Screening)

Retinopathy of prematurity (ROP) is an eye disease that occurs in babies born prematurely. The blood vessels of the retina grow in a disorganised manner and may cause scarring and retinal detachment. Development of the retinal vessels is monitored in infants at risk to diagnose whether ROP is developing and whether surgical intervention or other treatments are required.

Dr Claire Wilson and her team have developed screening software for monitoring the development of retinal blood vessels in the back of a baby's eye. This will allow clinicians to rapidly and accurately quantify the development of retinal vessels, providing a more accurate tool to aid diagnosis of ROP.

Dr Rachel Hemsley, Senior Business Development Manager, and Dr Richard Wedge, Project Development Manager at UCLB, are working closely with Dr Claire Wilson, software engineers, clinicians and regulatory experts to ensure that the software device meets the appropriate requirements for CE marking. RetVas will be CE marked in 2012.



Dr Claire Wilson, Dr Rachel Hemsley and Dr Richard Wedge

## C

### Fully Disposable Self-Illuminating Sigmoidoscope

Evexar Medical, managed by UCLB, is currently expanding the range of products in its portfolio to include a fully integrated self-illuminating sigmoidoscope.

The Evexar Self-Illuminating Sigmoidoscope is a single-use, fully disposable device that utilises a convenient (universal) illuminator inserted into the base of the handle and a light rod to direct light to the end of the scope, where it is most needed. It is a stand-alone, fully integrated system enabling examination and therapeutic procedures to be performed in clinics and the operating room, giving complete clinical freedom of use. The system is completely disposable as a unit and can be disposed of by the normal hospital procedures after use, reducing the risk of cross-infection.

Karen Cheetham, Director of Projects, worked closely with our clinician Steve Barker, regulatory consultant Tony Thorne and a team of designers to ensure that the final design of the sigmoidoscope was in line with clinicians' expectations. It is ideal for specialist clinicians to use in hospitals and private clinics. As it is self-illuminated there is no need for fibre optic cables or cleaning, and the unique integrated obturator design prevents obstruction of the examination channel and light guide.

The sigmoidoscope has been CE marked and was launched onto the market at the Medica conference in November 2011. This project illustrates the skills contained within the project management team and the ability of the team to transform a clinical concept to a global product.



Mr Steve Barker, Mr Tony Thorne and Mrs Karen Cheetham

A complete contracting service to UCL staff and clients, connecting UCL expertise with national and international organisations.

**Developing a European Roadmap for Sustained eHealth Innovation**

eHealth Innovation is an EU-funded Thematic Network (TN) that aims to develop consensus among stakeholders and produce a roadmap for interoperable eHealth services, deployed across Europe, that support patients in managing their health. Lead partners are empirica - Gesellschaft für Kommunikations- und Technologieforschung mbH and UCL Consultants led by Professor Dipak Kalra, Director of CHIME - Centre for Health Informatics & Multiprofessional Education at UCL.

The focus of eHealth Innovation is the re-architecting of healthcare services towards a patient-centric co-operation of actors and the meaningful integration of information. The TN will focus on systems and services that support dynamic and virtual teams working efficiently and effectively at enabling and empowering patients to play greater roles in their own health and wellness, with a focus on personalised health services and a supportive eHealth infostructure. Special emphasis will be put on chronic disease management for an ageing population.

The needs and requirements for a supporting infra- and infostructure, and notably on how to articulate efficiently further development, innovation and deployment measures as perceived by various stakeholder and expert groups, are among eHealth Innovation's objectives. Key issues to be dealt with include the efficient engagement of individuals in managing their health; improved, interactive communication; shared doctor-patient decision support and improved care co-ordination.

Challenges such as market fragmentation and lack of interoperability, lack of legal certainty and insufficient availability of financial support will be discussed, along with procurement and organisational issues. The TN, through its eHealth Innovation Roadmap, will address these challenges, examining ways of overcoming these barriers to the scaling up of eHealth services, and recommending appropriate policy measures at the European, national and stakeholder levels.

The network, led by UCL Consultants Ltd and Professor Dipak Kalra, involves 22 partners – 20 from 10 Member States and two from Switzerland – representing a broad range of stakeholders including national and regional authorities, industry (ICT and pharma), nation solution providers, researchers and users (health professionals, patients, healthcare providers and insurers), as well as European and national associations.



Professor Dipak Kalra







## **Solving Capacity Problems – Towards the Next Generation of Optical Fibre Communications Systems**

Global Internet traffic is expected to quadruple from 2009 to 2014, however the need for ever-higher communication bandwidth, with reduced cost and power consumption, strains the capability of the global optical fibre infrastructure to satisfy this demand. The Optical Networks Group (ONG) at UCL's Department of Electronic & Electrical Engineering is focusing on how new optical communication and digital signal processing technologies can be used to maximise network capacities.

In 2006 the Head of ONG, Professor Polina Bayvel, was approached by leading ICT solutions provider Huawei Technologies about collaborating on these high-speed optical communication and networking issues. Huawei supplies equipment to most of the world's major telecommunication network operators, including BT. In the UK Huawei has recently doubled its workforce and is committed to developing a graduate programme and creating more job opportunities. With a turnover of US\$32billion, Huawei is the largest Chinese company to invest in the UK.

Following the initial contact and a visit by a team from Huawei's HQ and European Research Centre, three consultancy projects have now been established to explore the design of optical communication systems and the use of signal processing techniques to maximise transmission capacity and distances.

The current work, set up as a Framework Agreement, focuses on designing optical communication systems with terabit capacity operating over many thousands of kilometres. In parallel, to reflect UCL-ONG's internationally leading research capabilities and state-of-the-art laboratories, the first-ever fully funded PhD studentship in optical communications was set up by Huawei at UCL. The current Framework Agreement is also supporting two further PhD students.

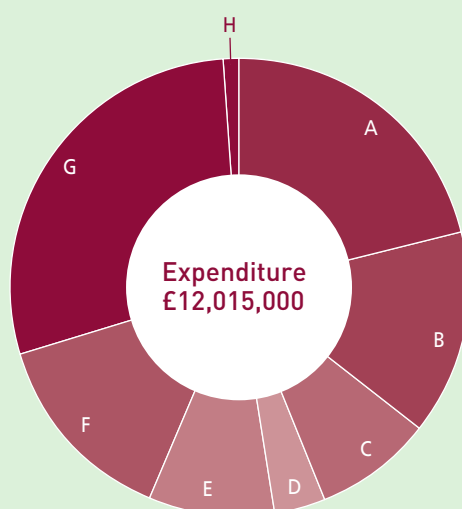
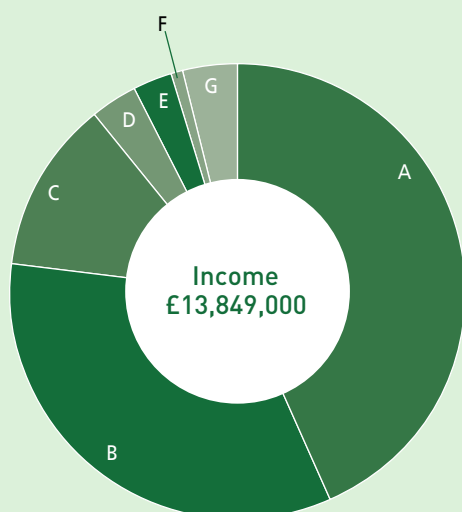
Huawei's funding to UCL has exceeded £500K and UCL-ONG has provided a range of scientific and technical analysis, design and advice. We expect the UCL-Huawei collaboration to grow from strength to strength, helping to achieve UCL's ambitions in increasing knowledge transfer exchange and supporting Huawei R&D on next-generation optical transmission systems.

UCL Consultants Ltd has worked closely with Professor Bayvel, her team and Huawei to build on the existing consultancy work and to establish a bespoke contractual framework so that this productive relationship can flourish and develop.



Professor Polina Bayvel

# UCLB GROUP ACTIVITY



## Summary results

	(£'000)	
	2010/11	2009/10
Income	13,849	11,736
Expenditure	12,015	10,741
<b>Profit before gift aid to UCL</b>	<b>1,834</b>	<b>995</b>

### Income analysis for 2010/11

	(£'000)
<b>A</b> Royalties and intellectual property income	6,008
<b>B</b> Consultancy services	4,668
<b>C</b> Services to UCL	1,679
<b>D</b> Proof of concept funding	486
<b>E</b> Research	391
<b>F</b> Interest	92
<b>G</b> Other	525
<b>Total</b>	<b>13,849</b>

### Expenditure analysis for 2010/11

	(£'000)
<b>A</b> Staff costs	2,548
<b>B</b> Research and consultancy	1,745
<b>C</b> Patent costs	1,000
<b>D</b> Premises	444
<b>E</b> Other	1,040
<b>F</b> Distributions to academics and inventors	1,695
<b>G</b> Distributions to UCL	3,425
<b>H</b> Investment impairments	118
<b>Total</b>	<b>12,015</b>

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

# FIND OUT MORE

## Locations

- 1 **UCL Business PLC**
- 2 University College London
- 3 UCL Advances
- 4 University College Hospital
- 5 UCL Institute of Ophthalmology
- 6 Wolfson Institute for Biomedical Research
- 7 UCL Institute of Neurology
- 8 UCL Institute of Child Health
- 9 Great Ormond Street Hospital
- 10 Moorfields Eye Hospital
- 11 UCL Eastman Dental Institute
- 12 Royal Free Hospital

## Contact details

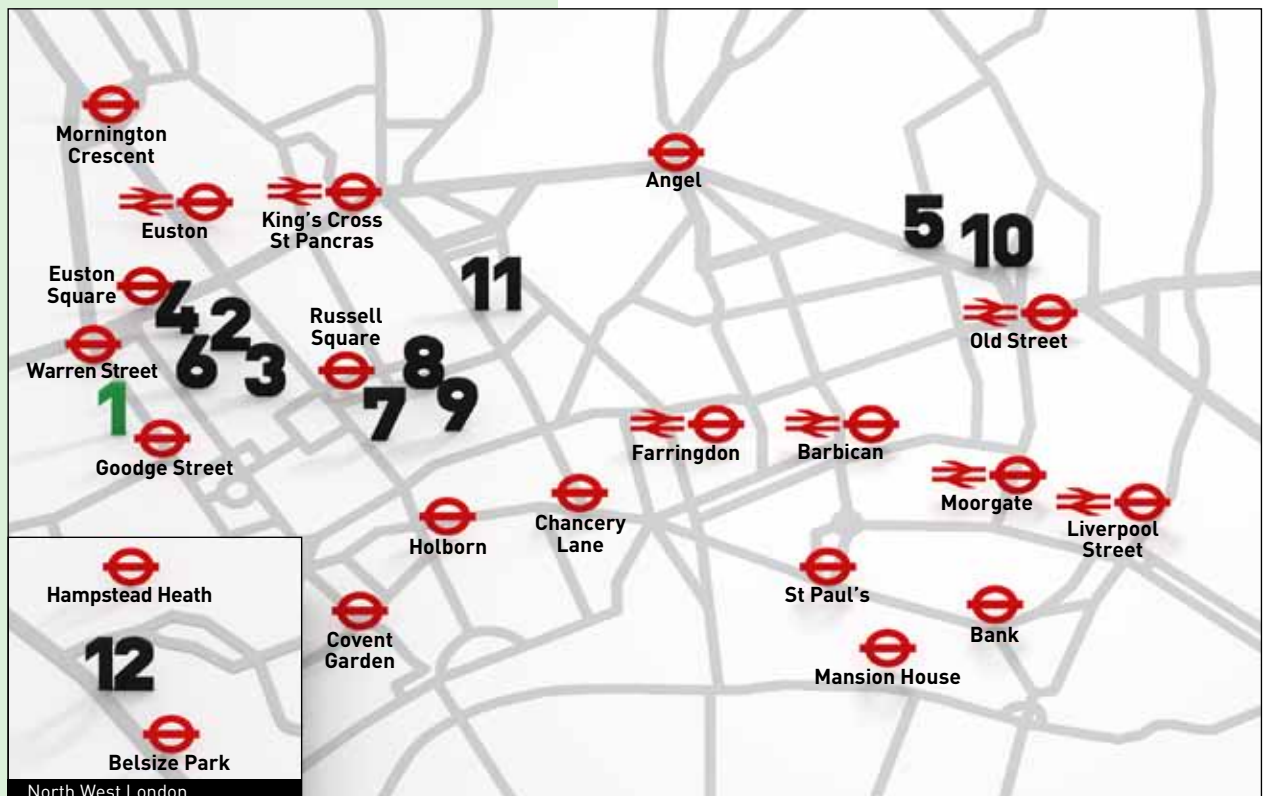
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### UCL Business PLC

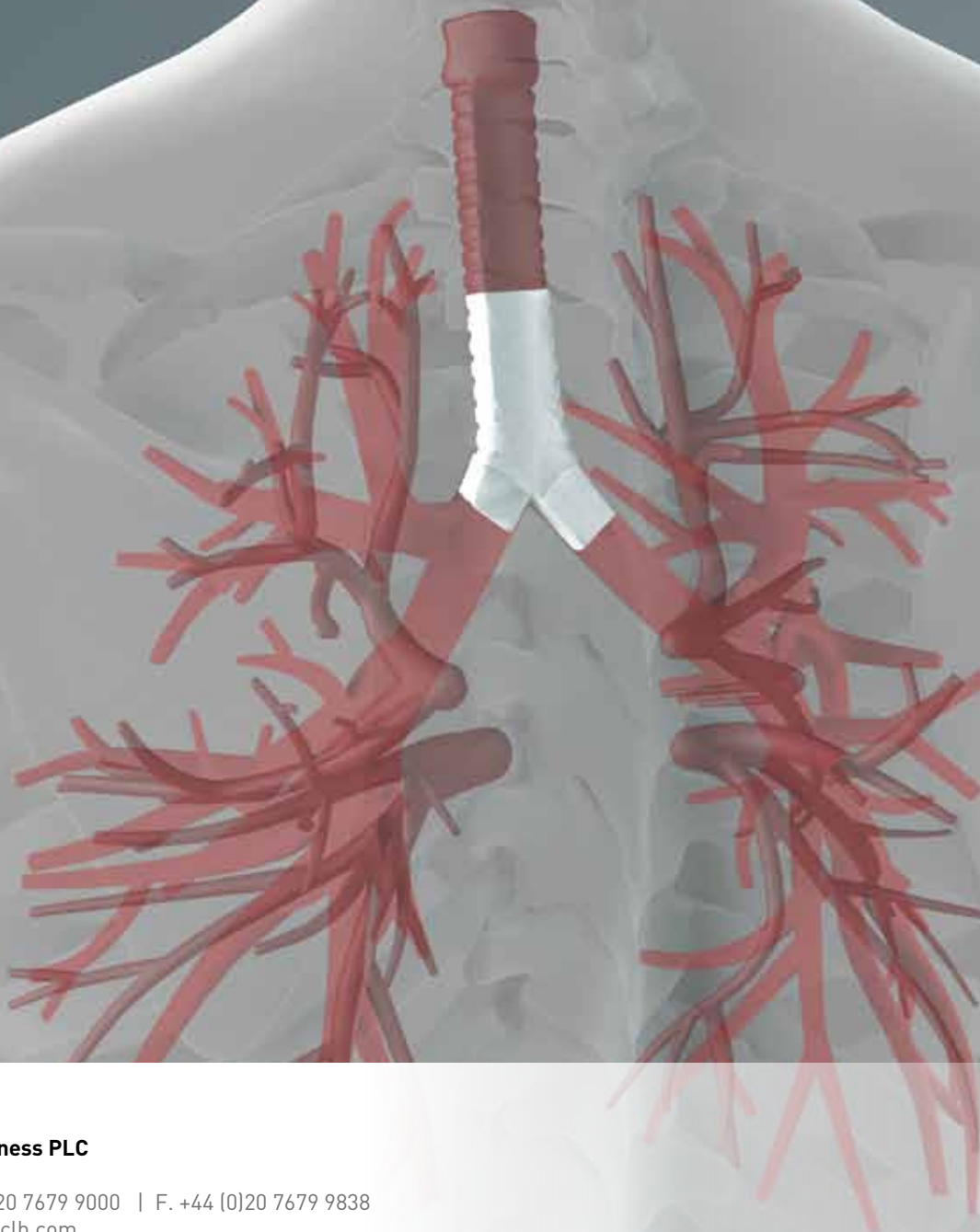
## Acknowledgements

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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