UCLB Business

ANNUAL REPORT 2012/2013

UCL

UCLB PROJECTS AS AT 2013

Turnover

£9.3 million

DRUG DISCOVERY	26
PATENT FAMILIES	306
VALUE OF INVESTMENTS 2012/13	80-110m

£945,000

Funding for 26 Proof of Concept projects in 2012/2013

New Licences

2013 51

2012 38

41

New patents applied for in 2012/13

Total Licences as at 31 July 2013

267

60

Equity holdings as at July 31 2013

CONTENTS

MESSAGE FROM
CENGIZ TARHAN
MANAGING DIRECTOR

During 2013 the company celebrated 20 years of delivering innovative technologies and improved healthcare. Incorporated in 1993 as Freemedic PLC, we became UCL BioMedica PLC in 2003 and then UCL Business PLC in 2006.

As a company we have evolved, experimented and pioneered over that time – and still do. One UCL innovation from those decades resulted in Simulect, an immunosuppressant treatment used in renal transplantation. The therapeutic was developed in partnership with UCL and Sandoz (now Novartis) and marketed for many years under licence. Although our patents have expired and the licence ended during 2013, the treatment has helped many people live longer and will continue to help save lives for the foreseeable future.

Supporting UCL's research, and that of UCL's partner hospitals, remains our core mission. Commercialising that research takes time, and we support every stage of the process including securing translational grants and investment funds. This year's report shows how we do this, a selection of projects we are developing, a focus on two areas where we are making an impact on the lives of children and the support we provide to UCL's researchers to deliver their vision – the realisation of their research.

During 2013 we forged a vital new partnership with BioMarin Pharmaceutical to deliver a treatment for haemophilia A using gene therapy. Interestingly, current recombinant factor VIII treatment for those suffering from haemophilia A also involved UCL's researchers and technologies over 20 years ago. The impact on people's lives over that period has been enormous. This novel gene therapy approach, we hope, will ultimately eradicate this disease.

Turnover increased from £8.7m to £9.3m during the year, with a cumulative profit of £679k (2012: £1.45m). The UCLB portfolio includes some 60 spinouts and 267 licences. Its value, based on risk-adjusted net present value, has increased to a significant level in the £80–110m range. The portfolio is important as a financial asset, but also as future evidence of impact for UCL and partner hospitals. We will go on building its value in the widest sense, to include not only financial but also economic and social benefit.

Looking ahead, UCLB will continue to deliver large components of UCL's enterprise strategy, and secure income for UCL and partners. We will also carry on facilitating translational grants, and providing evidence to support UCL's research excellence framework submissions with exemplars of commercialisation and impact.

I hope you enjoy reading the stories in this year's report. They are a continuing testament to our staff, directors and the community of UCL and NHS researchers who generate the ideas we have the pleasure of working with.

Cengiz Tarhan
Managing Director

> "UCLB will continue to deliver large components of UCL's enterprise strategy, and secure income for UCL and partners."

MESSAGE FROM
PROFESSOR STEPHEN CADDICK
VICE-PROVOST (ENTERPRISE)

It has been another excellent year for UCLB, during which the company increased activity across the spectrum of UCL's academic departments. Turnover rose from £8.7m to £9.3m, and with more than 50 new license deals, 40 patent applications and 139 new ideas taken into development, it looks as if we are set to grow even further.

Although the numbers are gratifying, they only tell a part of the story. This is because a central part of UCLB's mission is to support UCL's commitment to maximising impact from its research community. Not all of our activities generate financial benefit, but all are focused on social impact – and in a ground-breaking collaboration, UCLB has helped publish a guide to enable any university researcher to translate knowledge into social impact by creating social enterprises. UCL is deeply committed to supporting social entrepreneurs, and the social enterprise Tiny Tastes – a simple tasting game designed to help parents encourage their young children to eat more vegetables, devised by staff at the UCL Health Behaviour Centre – was a highlight from the last 12 months.

UCLB has also played a crucial role in commercialising research produced by Professor Amit Nathwani and his team at UCL into a gene therapy approach to treating haemophilia A. UCLB has licensed the factor VIII gene therapy to BioMarin Pharmaceutical in a partnership that provides hope to sufferers of a disease for which current treatment is intravenous infusions three times weekly.

It has been a year during which UCLB, along with UCL more widely, has adopted a humanitarian licensing policy. This commits us to exploring every opportunity to include provision for humanitarian licensing when we are in discussions about commercialising research and with potential licensees. The policy will enable us to continue to pursue commercial goals while enabling global access to cutting-edge medical innovations emerging from UCL.

I am delighted with all of the terrific successes that have been achieved by the combined expertise of the UCL research community and UCLB. The combination of commercial success, income generation – in the form of grants for the university – and the clear impact of the outputs of the commercialisation process, all demonstrate our commitment to enterprise and innovation.

Professor Stephen Caddick
Vice-Provost (Enterprise)

"A central part of UCLB's mission is to support UCL's commitment to maximising impact from its research community."

WHAT WE DO

Our Mission

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

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

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

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

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

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

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

Our project development team consists of professional project managers with expertise in drug discovery and pharmaceutical development, medical device technologies and advanced therapies regulation. As well as providing support with funding applications, we also identify and manage specialist external contractors to support all types of projects. Ultimately bringing research projects to commercial reality.

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

Our first aim:
Fulfil our Grand Challenges

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

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

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

Our second aim:
Add value where we can

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

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

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

"This award is recognition of what we have achieved and what we set out to achieve; which is to take a discovery science project and translate that to the benefit of the clinical population."

Professor Pete Coffey, Director of the London Project to Cure Blindness & Professor of Cellular Therapy & Visual Sciences, at the UCL Institute of Ophthalmology, was awarded the UCL Business Award 2013 in recognition of his work with the London Project- a research programme that aims to develop a cell therapy for age-related macular degeneration.

TECHNOLOGY PIPELINE

Showing the number of active projects at each stage of the development process as at July 2013.

IDEAS

104

INVENTION DISCLOSURE

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

69

PROOF OF CONCEPT (EXEMPLIFICATION)

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

45

16

PATENTING

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

67

42

INVESTMENTS

INTERNAL FUNDING

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

19

3

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.

KEY: total number of active projects per phase

Life and Medical Sciences

Physical sciences, engineering, built environment and social sciences

MARKET

76

40

MARKETING AND NEGOTIATION

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

201

LICENSING

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

66

25

SPINOUTS

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

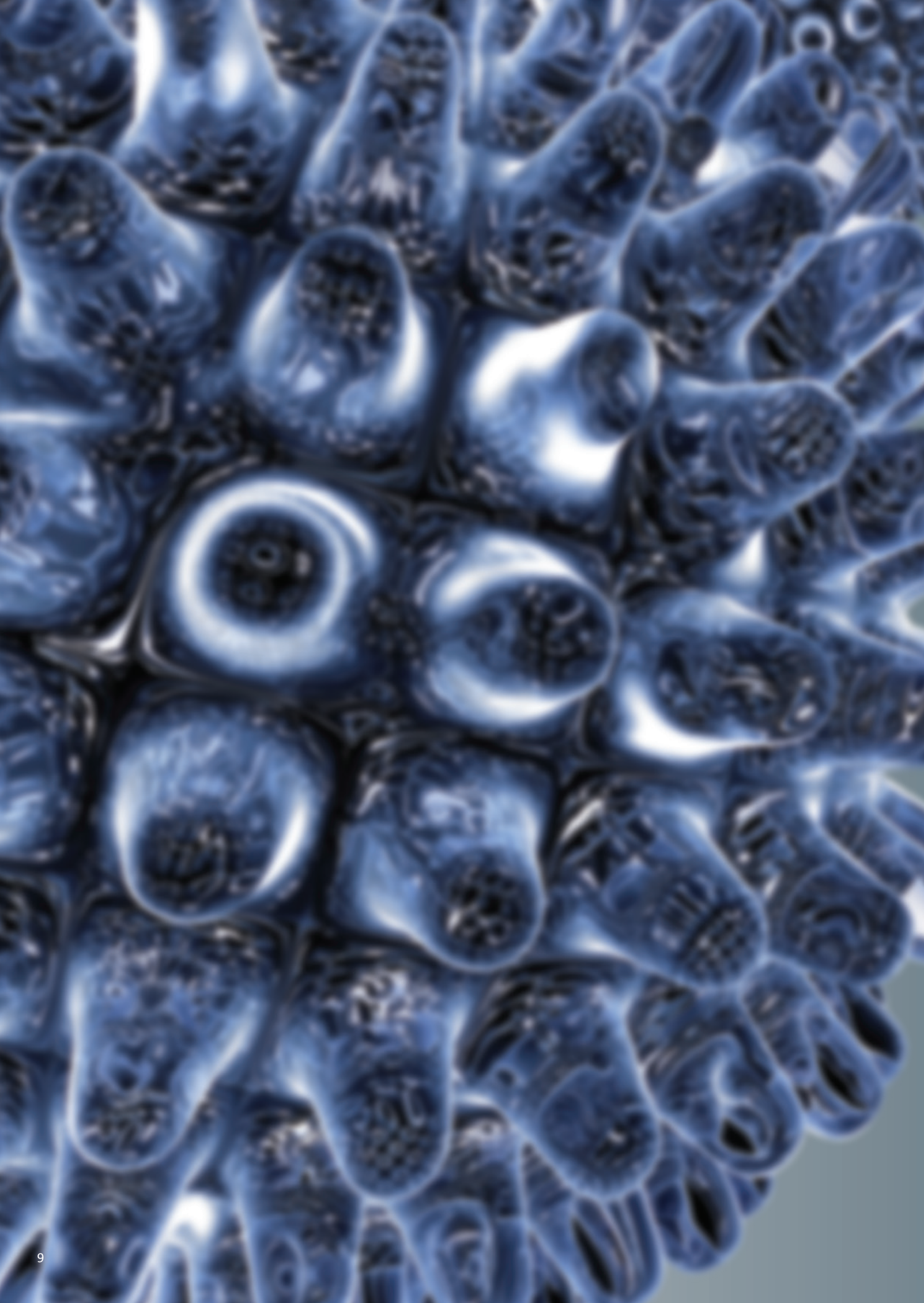
35

25

PRODUCT DEVELOPMENT AND PROJECT MANAGEMENT

We **NAVIGATE PROJECTS** through the regulatory and product development process, providing expertise and support through UCLH and other specialist clinical trials facilities.

Product development and project management



Social Enterprise

Collaboration

SUCCESS STORIES

Innovation

Technologies

PHYSICAL SCIENCES/ENGINEERING:
ADVANCED DESIGN TECHNOLOGY

Advanced Design Technology Ltd (ADT), a spinout company from the Department of Mechanical Engineering has revolutionised aerodynamic blade design by developing and commercialising a novel three-dimensional inverse design method.

Conventional blade design starts with a geometrical shape, that is iteratively tested and modified until the target performance specification is achieved. This is time-consuming and often results in designs that are limited by the designer's previous experience. In contrast, using ADT's TURBOdesign suite of software, the blade geometry is designed for a specified distribution of pressure or blade loading.

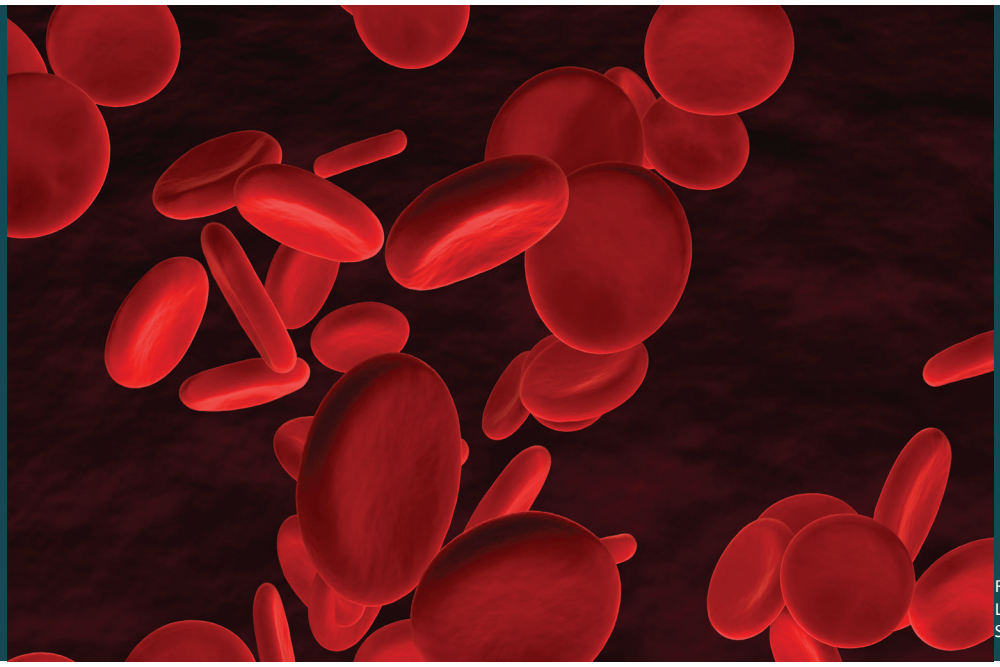
This allows designers to directly use their knowledge of fluid dynamics to arrive at breakthrough solutions for adverse flow phenomena. As a result, the time taken to design turbomachinery components is significantly reduced, coupled with major efficiency gains and hence a reduction in CO2 emissions.

The company has been led by Professor Mehrdad Zangeneh since its formation in 1998 as a joint venture between UCL and the Ebara Corporation of Japan.

Breakthrough solutions for adverse flow phenomena

Its broad customer base includes major turbo-machinery manufacturers, such as Cummins and Daikin Industries and pump manufacturers, including Rolls Royce Marine. The diversity of users for the TURBOdesign suite is illustrated by a recent project for Arc'teryx, a manufacturer of outdoor and climbing equipment who used ADT's tools to help design an evolutionary avalanche airbag backpack system.

Turnover during the 2012 financial year exceeded £1m. Dr Steven Schooling from UCLB, who represents UCL's interests on the board of the company, commented: "The continuing growth that ADT is achieving, serves to clearly demonstrate the strong industrial relevance of the UCL research base."



Red Blood Cells
Life and Medical Sciences

PROJECT MANAGEMENT:
FREEHAND TOUCH

Surgeons often need to review X-ray or ultrasound images during a medical procedure. Currently, medical staff must either re-scrub after interacting with the images, or direct a person outside of the room to manipulate the images. Both are inconvenient, and leave room for error and cross-contamination.

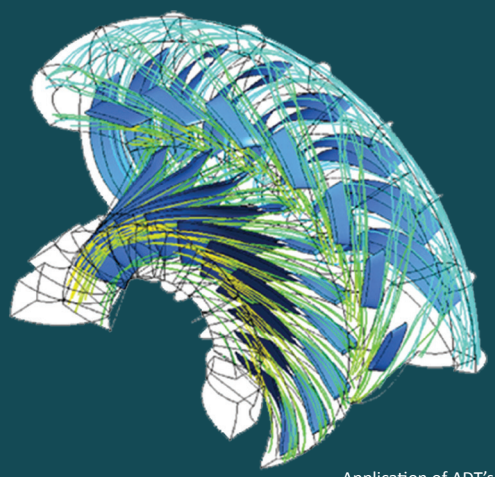
The solution is a touch-free medical image viewer interface situated within the operating theatre. FreeHand allows medical staff to use natural hand movements to easily navigate and manipulate medical images, while keeping their gloves sterile. This reduces the risks associated with current practice, while giving the surgeon instant control of the image when time can be crucial. FreeHand is a lower-cost, easy-to-use system that also has the potential for deployment in educational as well as medical settings.

Jaspal Kaur-Griffin, Senior Project Development Manager, and Dr Libby Oakden, Senior Business Manager at UCLB, are now working closely with Dr Navin Ramachandran from the Department of Radiology in UCLH to develop a strategy on how best to minimise time to market, while addressing relevant regulatory and technical hurdles.

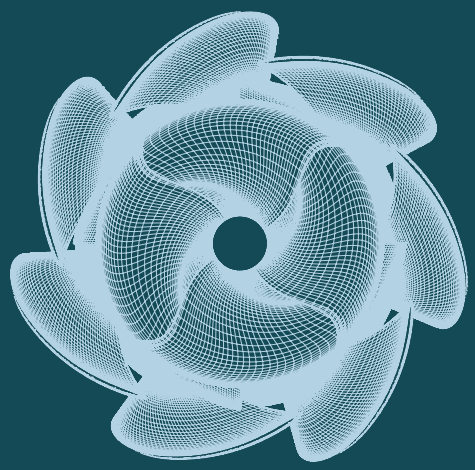
They have used their extensive contacts to source the best regulatory and software consultants to ensure that a CE mark can be achieved quickly. CE-marking the FreeHand system as a medical device will enable it to be sold within the European Economic Area for medical use. UCLB has supported this project through Biomedical Research Centre and Proof of Concept Funding.

Jaspal Kaur-Griffin said: "We are delighted to be working with Dr Ramachandran to aid the development of such an innovative project, and to provide a simple, low-cost solution to a very real and unmet medical need."

Reduces risks associated with current practice giving the surgeon instant control of the image.



Application of ADT's TURBOdesign suite for a compressor application
Physical Sciences/Engineering



ADT Impeller as featured on our front cover
Physical Sciences/Engineering

LIFE AND MEDICAL SCIENCES: EXCLUSIVE LICENCE WITH BIOMARIN

"This technology offers the potential, for the first time to cure haemophilia."

Haemophilia A is a genetic condition that affects the body's ability to clot, caused by a deficiency of clotting factor VIII. It currently affects about 6,000 people in the UK. Worldwide, an estimated 1 in 5,000 boys will be born with haemophilia A, a strand five times as common as haemophilia B.

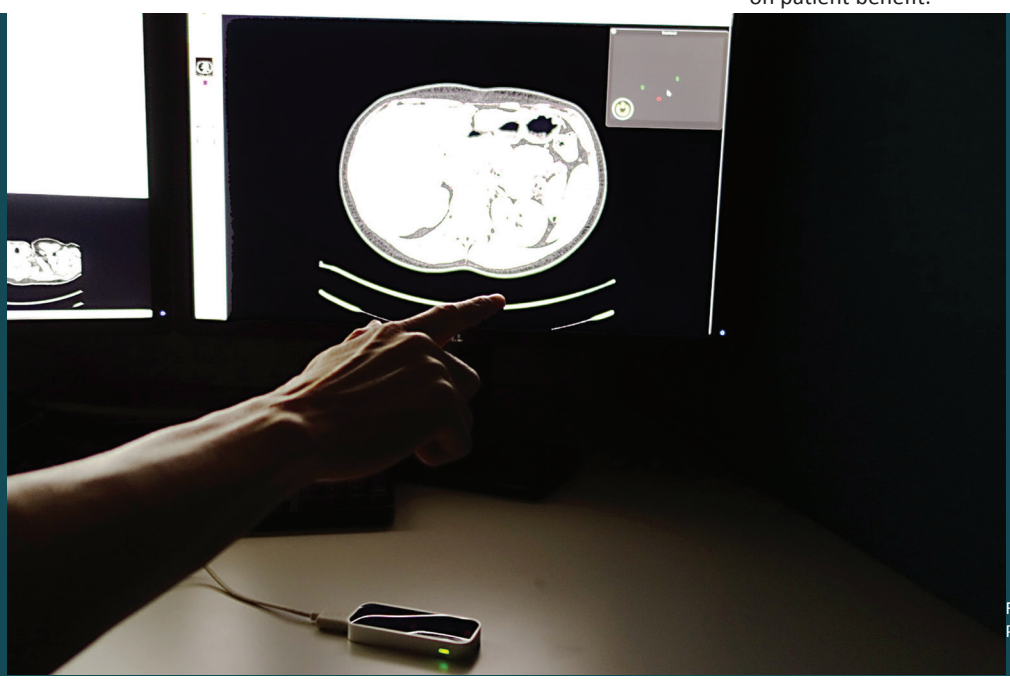
In April 2013, UCLB licensed a factor VIII gene therapy programme for haemophilia A to BioMarin Pharmaceutical.

This ground-breaking technology was developed by Professor Amit Nathwani and his research team at UCL and St Jude Children's Research Hospital, and was made possible through Medical Research Council funding.

Previously, there have been many setbacks and fatalities associated with adeno-associated virus gene therapy treatments. The work on haemophilia A is based on the first successful gene therapy trial for treatment of haemophilia B, carried out by Professor Nathwani.

BioMarin is a California-based biopharmaceutical company that develops and commercialises innovative treatments for serious diseases and medical conditions. Under this collaboration BioMarin will apply its expertise to the licensed gene therapy products for the treatment of haemophilia A. The company plans to initiate proof of concept human studies by the end of 2014.

Dr Richard Fagan, Director of BioPharm for UCLB commented: "We are delighted to be working with BioMarin on this ground-breaking technology, which offers for the first time the potential to cure haemophilia. BioMarin bring world-class manufacturing, clinical development and commercial capabilities to this partnership, which combined with the UCL haemophilia B gene therapy technology, will undoubtedly have significant impact on patient benefit."



Freehand Touch
Project Management

SPOTLIGHT ON WORKING WITH CHILDREN

THERAKIND

Therakind – a company in which UCLB has an equity shareholding – is focused on creating and developing safe and effective authorised paediatric products, advancing medicines from concept to regulatory approval and addressing areas of unmet medical need.

In January 2007 the EU introduced new legislation governing the development and authorisation of medicines for children. Exploiting this new legislation – which is designed to better protect children throughout the EU – Therakind was pivotal in bringing to market Buccolam®, a treatment for prolonged acute convulsive seizures in children. Therakind was responsible for the regulatory development strategy and designed, managed and sponsored the clinical trial, resulting in Buccolam® being granted a European centralised paediatric use marketing authorisation (PUMA) – the first product approved since the inception of this type of marketing authorisation. Buccolam® was sold in 2010 to Viropharma Inc (recently acquired by Shire Pharmaceuticals) and is now marketed across Europe.

Ayendi®, Therakind's second successful product, gained marketing authorisation in October 2013. Developed in collaboration with Wockhardt Ltd, Ayendi® is a paediatric pain control product developed specifically for the UK market.

Therakind continues to expand its product portfolio and is currently developing products for oncology/immunology, diabetes, sedation and infection. The company has been awarded Department of Health HEE grants, totalling £900k, for the diabetes product which is currently in early stage development. In addition, as part of FP7 consortiums, Therakind has been awarded 'FP7 grants for off-patent drugs' by the European Commission for the sedation and antibiotic products; each grant valued at c €2m over 5 years.

Therakind: developing safe and effective authorised paediatric products

Trimtots: Professor Antul Singhal, Ana Lemmo Charnalia, Dr Julie Lanigan

TRIMTOTS

TrimTots is an effective new programme to help prevent and manage childhood obesity, developed by Professor Atul Singhal and Dr Julie Lanigan from the Childhood Nutrition Research Centre at the UCL Institute of Child Health.

An estimated 22 million under-fives are currently classified as overweight or obese. These obese children are known to develop lifelong risks such as diabetes, heart disease and cancer. They are also more likely to suffer from low self-esteem and have a poorer quality of life.

TrimTots helps parents and carers of young children to establish healthy eating and activity patterns in order to promote a healthy lifestyle. A team of health professionals, including dieticians, paediatricians, physical activity professionals and clinical psychologists, delivers weekly education sessions, over 12 weeks. These two-hour sessions are run as a series of workshops: arts and craft, music and movement, healthy snacks, adult nutrition education (WaistWise) and children's play-based physical activities (FunBursts and StretchStory).

TrimTots was successfully delivered in 11 children's centres between 2008 and 2013. The proposal is now to roll out the programme nationally, with 35 children's centres in Hertfordshire alone having expressed interest in running it. It is the only evidence-based programme shown to be effective in preventing and managing obesity in preschool children that has been evaluated using the gold-standard randomised controlled trial design. Follow-up studies over two years have shown sustained BMI reduction in children who participated.

UCLB assisted the team in securing a HEFCE UnLtd Social Enterprise award in 2013, and since then has been providing business planning support, Proof of Concept funding, and intellectual property advice to help make the programme available to more children.

Ana Lemmo Charnalia, UCLB Social Enterprise Business Manager, said: "TrimTots is an evidence-based intervention that has the potential to tackle the growing problem of childhood obesity in the UK. UCLB is supporting the team to achieve wider adoption of the programme through business development activities with the objective of delivering an enhanced translational outcome for UCL."

PARTNER HOSPITALS

Dr Max Bardwell (Biomedical Research Centre), Dr Rachel Hemsley (Moorfields Eye Hospital), Dr Libby Oakden (University College London Hospitals), Rebecca Paulraj (Royal Free London Hospital), Dr Chris Williams (Great Ormond Street Hospital for Children).

Partner Hospitals

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

What is NHS innovation?

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

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

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

Services we provide include:

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

"UCLB have been instrumental in evaluating and taking forward a number of strategic partnerships with industry and academia on behalf of the BRC. Their experience has been critical, ensuring the success of these collaborations."

Professor Bryan Williams, Chair of Medicine at UCL and Director of the NIHR UCLH/ UCL Biomedical Research Centre (BRC)

FINANCIALS

UCLB
BALANCE SHEET

	(£'000)
Fixed assets	
Tangible assets	168
Investments*	5, 249
	5, 417

	(£'000)
Capital and reserves	
Called up share capital	8, 412
Profit and loss account	-1, 599

Current Assets	
Debtors	3, 746
Cash	1, 918
	5, 664

Creditors: amounts falling due withing one year
-4, 268

Net current assets
1, 396

Net assets
6, 813

Sharedolders' Funds
6, 813

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

Based on that information, the UCLB Board is comfortable that the value of assets managed by UCLB lies in the range of £80 million to £110 million.

FINANCIALS

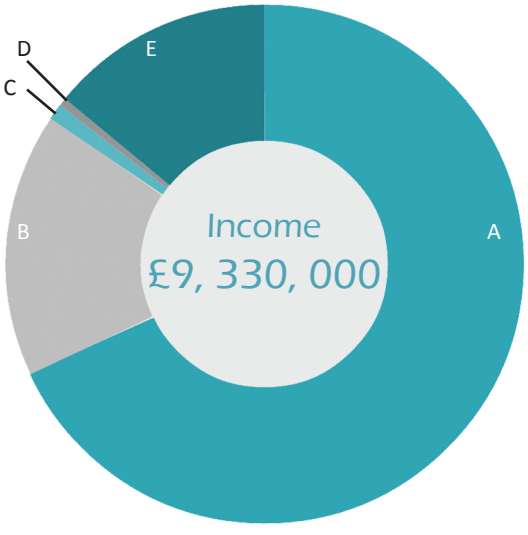
UCLB
GROUP ACTIVITY

Summary Results

	(£'000)	(£'000)
	2012/13	**2011/12**
Income	9, 330	8, 666
Expenditure	8, 651	7, 217
Profit before gift aid to UCL	**679**	**1, 449**

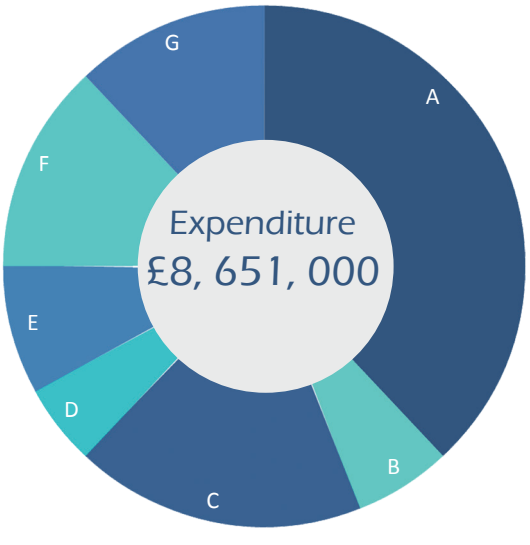
Income Analysis for 2012/13

		(£'000)
A	Royalties and intellectual property income	6, 337
B	Services to UCL	1,064
C	Research and Proof of Concept funding	69
D	Interest	48
E	Other	1, 272
		9, 330



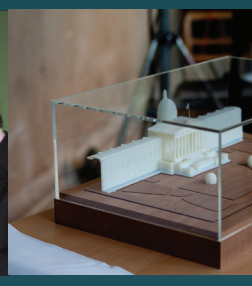
Expenditure analysis for 2012/13

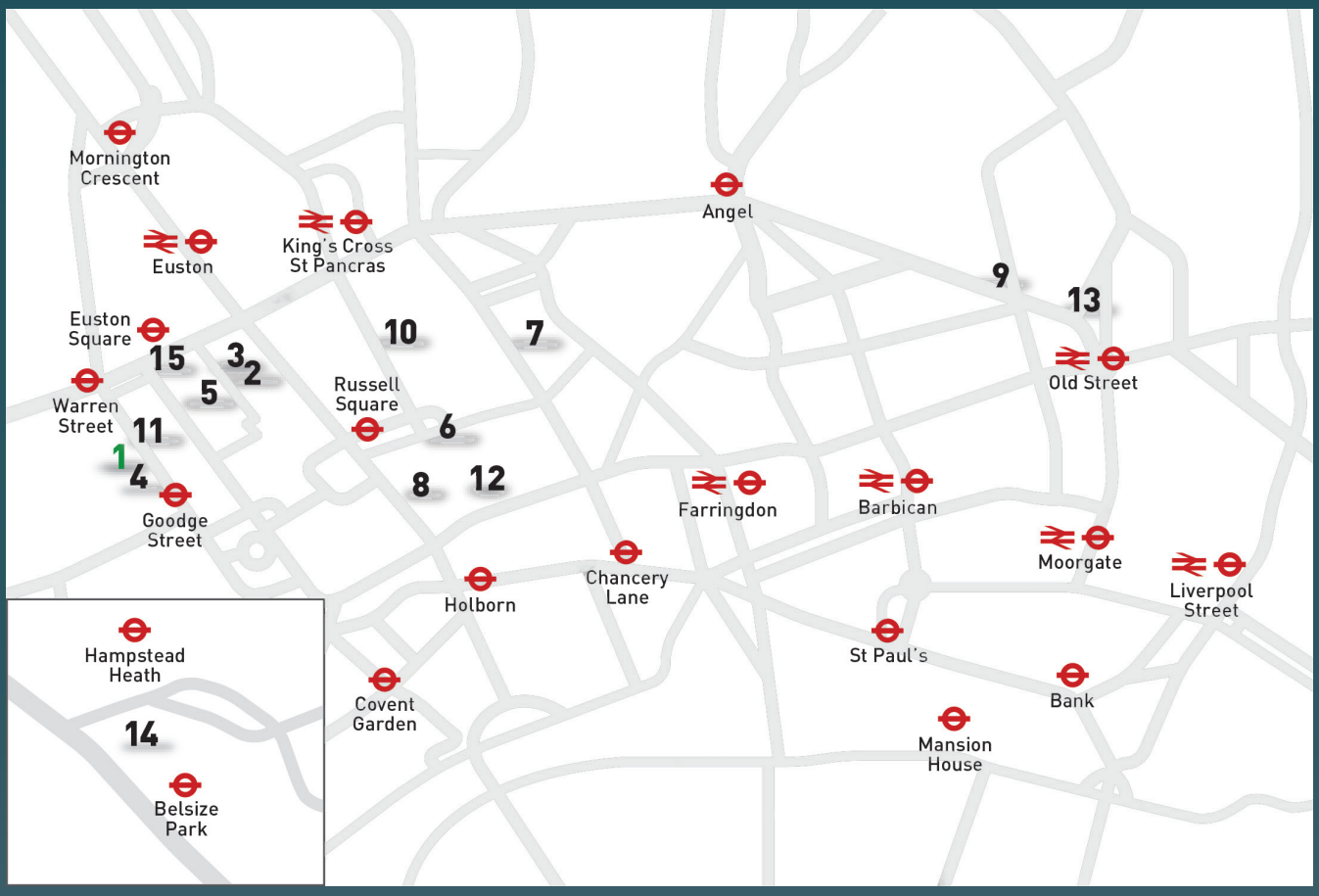
		(£'000)
A	Staff costs	3, 253
B	Research and consultancy	502
C	Patent costs	1,536
D	Premises	434
E	Other	696
F	Distributions to academics and inventors	1, 170
G	Distributions to UCL	1,070
		8, 651



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

FIND OUT MORE





Locations

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

Partner Hospitals

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

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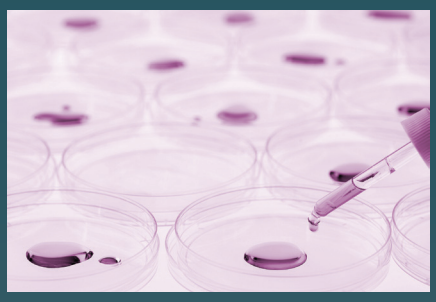
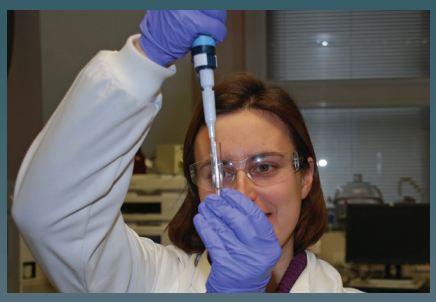
ABOUT UCL BUSINESS PLC

UCL Business PLC (UCLB) is a leading technology transfer company that supports and commercialises research and innovations arising from UCL, one of the UK's top research-led universities. UCLB has a successful track record and a strong reputation for identifying and protecting promising new technologies and innovations from UCL academics. UCLB has a strong track record in commercialising medical technologies and provides technology transfer services to UCL's associated hospitals; University College London Hospitals, Moorfields Eye Hospital, Great Ormond Street Hospital for Children and the Royal Free London Hospital. It invests directly in development projects to maximise the potential of the research and manages the commercialisation process of technologies from laboratory to market.

UCLB supports UCL's Grand Challenges of increasing UCL's positive impact on and contribution to Global Health, Sustainable Cities, Intercultural Interaction and Human Wellbeing.

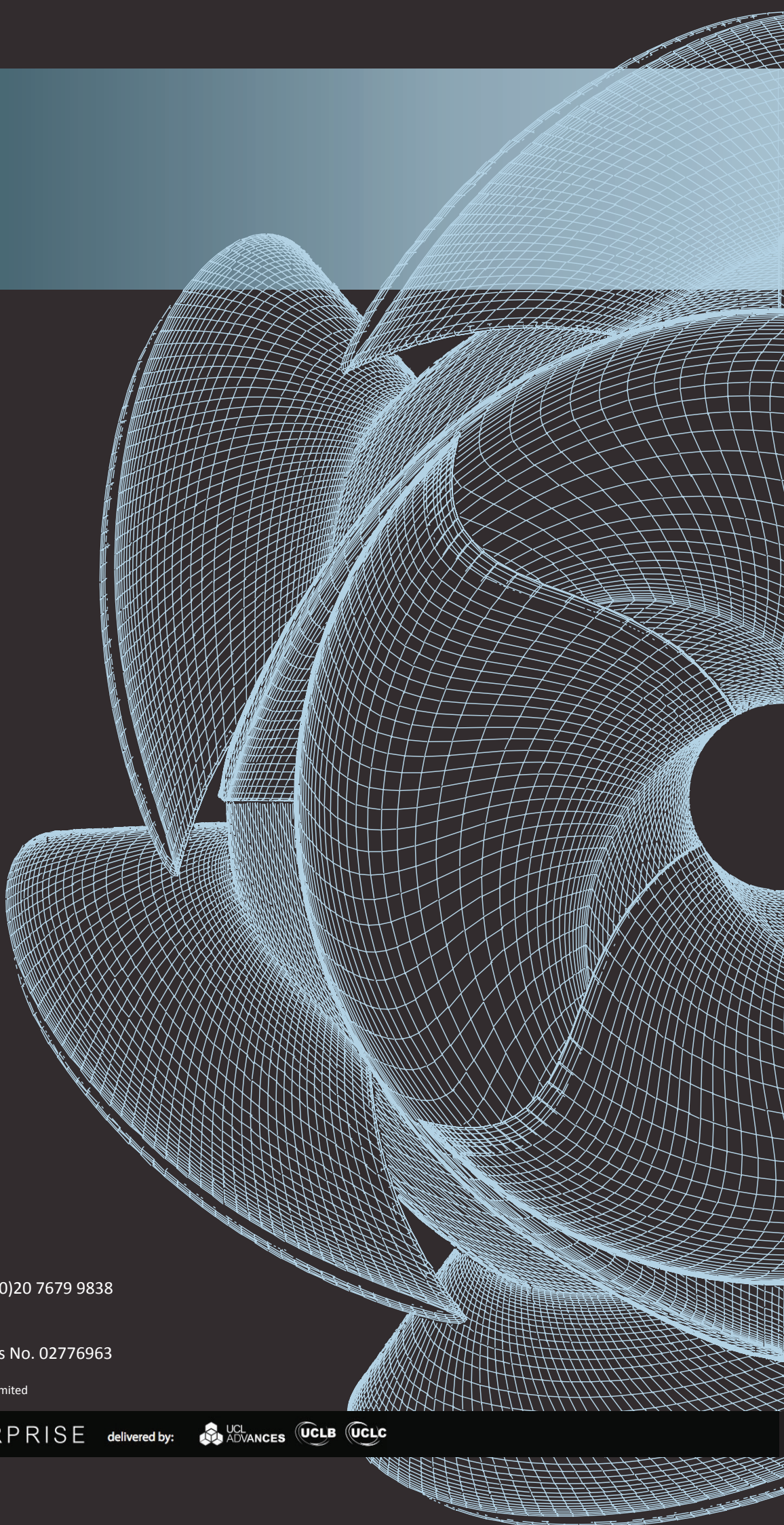
For further information, please visit www.uclb.com





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.



UCL Business PLC

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