

think

Business with Birmingham
issue eight

think
**BUSINESS WITH
THE UNIVERSITY
OF THE YEAR**



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think tailored for business

Contact us

foreword

At the University of Birmingham our research leads to new inventions and fuels innovation and business growth. We produce 6,000 talented and highly employable graduates every year. We play an integral role in the economic, social, and cultural growth of our nation and our region. We generate over £1 billion of regional economic activity each year and support nearly 12,000 jobs. Our dedication to quality and innovation was recognised recently by *The Times* and *The Sunday Times*, when they named us as 'University of the Year'.

This newsletter demonstrates some of the mechanisms that we use directly to support businesses, entrepreneurs, and start-ups to



develop new commercial applications from our research. Such mechanisms include access to our intellectual property, Knowledge Transfer Partnerships (KTPs), a new Business Club for SMEs, and free incubation space at Birmingham Research Park.

We have an excellent team of enthusiastic Business Engagement Partners, ready to listen to the challenges you are facing. If you are a business seeking a solution that will propel your business forward, and you think that the 'University of the Year' can help, then please get in touch with us.

Professor David Eastwood
Vice-Chancellor

By gum!

Liquid and soft-food nutritional formulations are highly palatable to consumers. However, their rapid emptying from the stomach and absorption can result in large fluctuations in blood glucose levels and limited satiating power. Such effects are detrimental to cognitive performance, physical performance and potentially long term health (eg, metabolic consequence of poor glucose control development of overweight and obesity).

The consumption of liquid or soft foods that restructure in the stomach into gels offers one way to slow down energy release from nutritional products and provide sustained feelings of fullness for consumers. However, to-date, lack of effective technologies has limited progress in this exciting area of self-structuring nutritional products.

Now scientists, led by Professor Ian Norton, from the School of Chemical Engineering at the University of Birmingham have developed a process, using 'Gellan gum', a gelling agent,

which has already been approved for use in food manufacture. This new technology enables transformation of liquid and soft-food formulations into nutritional products that self-structure in the acidic environment of the stomach.

'Our recent findings suggest including Gellan gum in such nutritional formulations effectively improves satiety and also control nutrient release from energy-containing solutions'

Professor Ian Norton,
University of Birmingham

This is just one example of a technology available to licence through the University's technology transfer company, Alta Innovations.

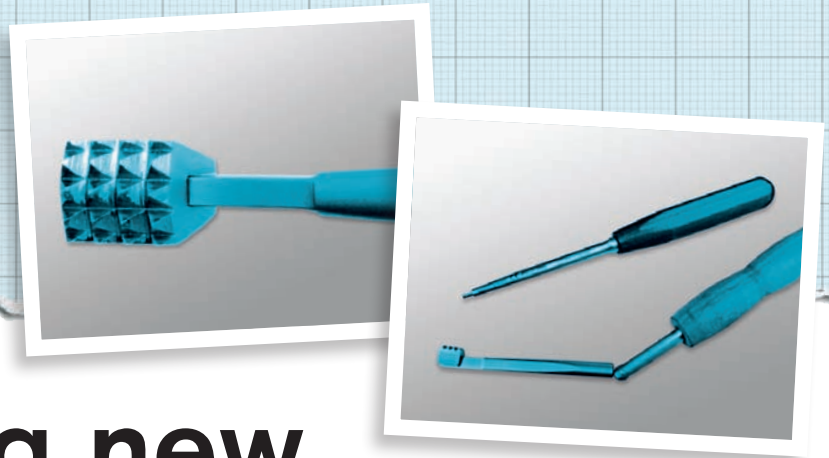
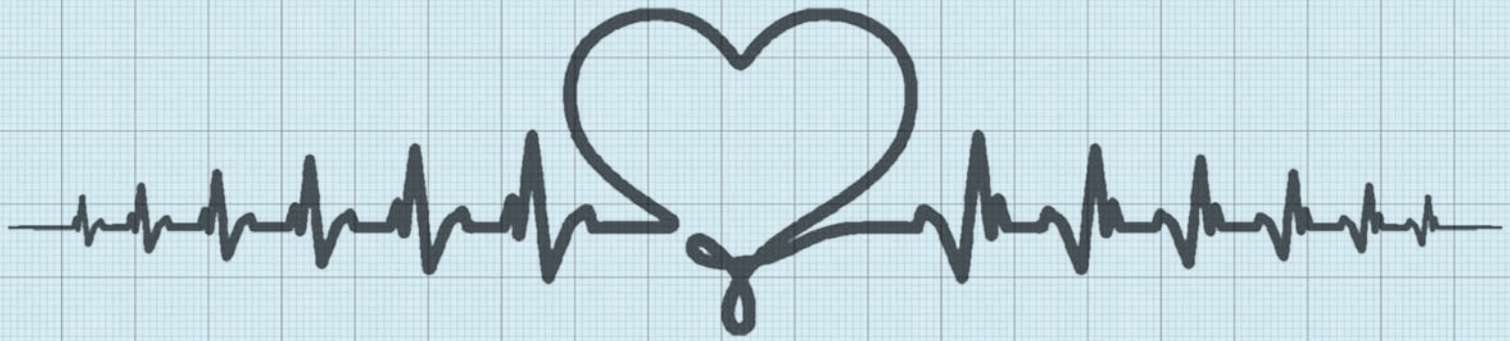
Technology and IP

Learn more

www.alta.bham.ac.uk

contact: info@alta.bham.ac.uk

think health



Developing new medical devices for trauma care

The University of Birmingham is a key partner in the recently awarded National Institute for Health Research (NIHR) centre for developing trauma management technologies.

The NIHR Trauma Management Healthcare Technology Co-operative (HTC) is designed to pull together clinicians, academics, patient groups, charities and industry to facilitate development of new medical devices and technology-dependent interventions which improve treatment or quality of life for trauma patients, ranging from pre-hospitalisation to assisted living in the home. The HTC works collaboratively with industry, supporting grant applications, IP protection, prototype

development, and navigation through medical device regulations and device usability evaluation studies.

The NIHR Trauma Management HTC is one of the eight funded co-operatives. It is hosted by University Hospitals Birmingham Foundation Trust (UHBFT) and is led by the University's Senior Lecturer in Anaesthesia and Intensive Care Medicine, Dr Tom Clutton-Brock.

NIHR Trauma Management HTC

Learn more

www.trauma.htc.nihr.ac.uk

Contact: TraumaHTC@uhb.nhs.uk

Case study

A brand new bone debridement device designed to remove infected matter from the bone has been invented by Miss Deepa Bose, a consultant orthopaedic surgeon and fellow clinician Dr Simon Williams, based at UHBFT. Current surgical tools for these procedures tend to be rigid, straight devices that make it very difficult to access the bone cavity and remove infected matter from inside.

Miss Bose and Dr Williams first contacted the Research and Development department at UHBFT and were put in touch with the NHS Innovations Hub for the West Midlands who linked the inventors with Coventry University's Health Design Technology Institute. This team developed a number of initial concepts for the device which were finalised into a design incorporating adjustable hinges to allow for much greater dexterity when working in bone cavities. The device is now being manufactured by the Sheffield company Platts and Nisbett and will reach the market soon.

think health

The future of vaccines



Touchlight Genetics Ltd (TLG) is at the forefront of the development of innovative DNA-based medicines for the treatment of both human and animal diseases. The company has also developed an effective drug delivery system. These DNA-based drugs have the potential to revolutionise healthcare provision.

Working with researchers at the University of Birmingham's School of Biosciences, led by Professor Jeff Cole, the Company has now embarked on a Knowledge Transfer Partnership (KTP)* project that will develop the cloning and expression of DNA metabolising enzymes to enhance the biosynthesis of novel DNA vaccines. The TLG technology is unique in

generating vaccines uncontaminated with unwanted DNA sequences.

TLG have developed a process for synthesising DNA to be used in healthcare, and are developing in-house equipment to scale up production. Their process requires two enzymes, only one of which is currently produced in-house. Expertise in Birmingham will be exploited to produce and purify commercially useful quantities of the second enzyme and is critical to successful completion of the KTP. This partnership with the University of Birmingham will give TLG opportunities to commercialise their research by generating products of critical importance to healthcare and the UK economy.

Successful delivery of this project will significantly extend the range of products TLG can market thus leading to the creation of new jobs.

'It is important for our experts to share knowledge with academic experts, particularly when a company has the ambition to revolutionise the established field of vaccines and to bring new drugs to the market. We are enjoying the participation of our KTP Associate in our laboratory, and we hope that both entities will benefit from the experience.'

Jonny Ohlson, CEO, Touchlight Genetics Ltd

Thermo Fisher Scientific forms its first European Technology Alliance Partnership

Thermo Fisher Scientific Inc., has entered into its first Technology Alliance Partnership in Europe with scientists from the University of Birmingham. The alliance will aim to accelerate research in high-resolution accurate mass (HRAM) and triple quadrupole liquid chromatography-mass spectrometry (LC-MS) for life science applications.

This partnership will focus on the groundbreaking work of the University's College of Life and Environmental Sciences in metabolomics and proteomics – the study of molecules created by biological processes – and builds on investments in Systems Science for Health. After almost a decade of collaboration between the two organisations, the alliance will now give the University a

privileged status with respect to personnel exchanges, business and product development, and research collaboration, as well as studentships and placement opportunities for PhD students.

Thermo Fisher, with revenues of over \$12B, is one of the largest science service companies in the world, and the global market for metabolomics is expected to reach \$1.5B by 2017, with applications ranging from clinical to environmental.

'The University of Birmingham scientists share our drive to make the world healthier, cleaner and safer. We look forward to a very productive collaboration with this innovative, creative group for advancing metabolomic and proteomic research.'

Iain Mylchreest, Vice President, Research and Development, Thermo Fisher Scientific

Systems Science for Health

Learn more

www.birmingham.ac.uk/research/activity/ssfh
www.birmingham.ac.uk/research/activity/metabolomics

contact: m.viant@bham.ac.uk

Knowledge Transfer Partnerships (KTP)

Learn more

www.birmingham.ac.uk/ktp
contact: ktp@contacts.bham.ac.uk

*KTP aims to help businesses to improve their competitiveness and productivity through the better use of knowledge, technology and skills that reside within the UK knowledge base. KTP is funded by the Technology Strategy Board along with other government funding organisations.

think business



Join the Birmingham Business Club

The Birmingham Business Club was recently launched when businesses from across the West Midlands region visited Birmingham Research Park for an opportunity to network, be informed about funding opportunities and learn how they can access the knowledge and expertise at the University of Birmingham.

Delegates were also treated to an informative and entertaining talk on consumer markets and brand loyalty by marketing expert, Isabelle Szmigin, Professor of Marketing at the University of Birmingham.

The audience was a mix of business leaders who have already benefitted from engaging

with the University of Birmingham and potential partners eager to tap into the considerable opportunities on offer from the University.

Nick Blinco, Director of Engagement, University of Birmingham welcomed guests and was delighted to announce the launch of The Birmingham Business Club which will be a gateway for business, in particular local SMEs, to the University.

Businesses who become members of the Club will benefit from regular breakfast networking events, new funding announcements, access to a range of state-of-the art equipment and free hot desks and meeting rooms in the parks business incubator, BizzInn.

'Birmingham Business Club will provide an opportunity for businesses to network with peers, to find out about ways they can work with the University, and to be able to influence how we enhance our business offer. In addition it will facilitate debate as we are keen to listen to what business wants and to respond quickly.'

**Nick Blinco, Director of Engagement,
University of Birmingham**

Join the Birmingham Business Club

Learn more

www.birmingham.ac.uk/tailoredforbusiness
contact: businessteam@bham.ac.uk

Doing business in India



The University of Birmingham recently hosted a collaborative event with the Confederation of Indian Industry and UKTI to highlight opportunities and examine the current environment for 'doing business in India'. A panel of senior executives including the Consul General of India to Birmingham and representatives from leading Indian businesses such as Tata Motors and Infosys, came together for a lively and interesting discussion.

Having the second largest Indian community in the UK, Birmingham has strong industrial and business links with the country. With an audience of around 60 businesses, many of them global, the panel discussed the current landscape for engagement in India, both the challenges and the opportunities for growth. The event also demonstrated the activities and the capabilities of the University of Birmingham and with an established office in New Delhi it is clear that India is a strategic international market for the University in terms of developing research partnerships, business engagement activities and student recruitment.

The University has significant research strengths in sport exercise, health and medical technologies, engineering and transport, and energy and environmental technologies all with considerable relevance to India. It is actively looking at opportunities to engage with UK and Indian businesses around their innovation needs in these areas.

'The Midlands have been the heart of British Industry, of its strengths in innovation, R&D and manufacturing. We aimed to bring UK companies and Indian industry together to discuss business opportunities and possibilities and at the same time understand the policy and the regulatory framework of doing business in India. The event sparked some really interesting discussion and demonstrated what enthusiasm there is to open up new areas of collaboration.'

**Dr Gunveena Chadha, Director and Head,
UK Confederation of Indian Industry**

University of Birmingham Business events

Learn more

www.birmingham.ac.uk/partners
contact: businessteam@bham.ac.uk

think advanced manufacturing

NEW RAILWAY RESEARCH INSTITUTE IN CHINA

The Anhui-Birmingham International Research Institute in Rail Transportation (ABIRIRT) was unveiled in Hefei recently by Professor Richard Williams, Pro-Vice-Chancellor and Head of the College of Engineering and Physical Sciences at the University of Birmingham and Mr Zhang Tianpei, Deputy Director-General of Anhui Development and Reform Commission.

The new Institute provides a substantial physical base, located in Hefei, positioned alongside one of the China High Speed Train Authorities and further strengthens the esteemed portfolio of the Birmingham Centre for Railway Research and Education (BCRRE), the largest academic railway group in Europe. Two initial research projects will focus on Hefei Metro Line 1, which is currently under construction.

'The formation of the new Anhui-Birmingham International Research Institute in Railway Transportation (ABIRIRT) will offer us the opportunity to support and influence the development of railways in a country where there are now 10,000km of high speed line. As the Institute grows we aim to develop significant research capability in Anhui, so that it acts as a base for our railway research not only in China but throughout Southeast Asia.'

Professor Clive Roberts, Director of ABIRIRT, and Director (Research) of BCRRE at the University of Birmingham

月翰国际轨道交通研究院成立暨签

International Research Institute in Rail Transportation Opening Ceremony &



ABIRIRT/Birmingham Centre for Railway Research and Education

Learn more

www.birmingham.ac.uk/research/activity/railway
contact: b.liu.2@bham.ac.uk

'In Anhui Province alone there are 16 cities actively planning or building high-speed rail systems, the formation of ABIRIRT is perfectly timed to make key contributions to this development. We will provide our total support for the success and growth of ABIRIRT. I hope it will become a good example of the UK-China collaborations.'

**Deputy Director-General of Anhui Development and Reform Commission
Mr Zhang Tianpei**

Battening down the *hatches*!

Truflo is a specialist designer, manufacturer and supplier of high integrity valves, actuators and pressure reducing stations for critical seawater, nuclear and naval marine applications. For several decades they have been at the forefront of the Naval Marine industry and there are currently 120,000 Truflo valves in service in 21 navies worldwide.

The latest challenge for the Company is to produce a 'zero leakage' through seat and to atmosphere ball valve for safety critical applications and arduous environments. Nil leakage is essential to minimise environmental impact both in terms of reducing energy consumption and reducing harmful emissions. Current sealing technology is best suited for linear motion and equipment is relatively slow to operate, fragile and subject to failure when used in rotary applications.

With support from the University of Birmingham's Innovation Voucher scheme the Company are working with Dr Karl Dearn from the University's School of Mechanical Engineering, to produce a feasibility study on possible design options that will look in particular at solutions around linear or rotary motion. And future work through a Knowledge Transfer Partnership will involve research of latest materials and technologies, design, FEA analysis, prototype manufacture, extensive testing and product performance evaluation.

Truflo have also provided opportunities for University of Birmingham students on gap year and summer projects that have looked to advance product development whilst at the same time enhancing the students' knowledge, practical experience and future employability.

'The expertise of the researchers at the University of Birmingham has been invaluable and is key to us remaining at the forefront of delivering high integrity flow control solutions to our customers. We believe that this strong, long-term, mutual relationship is essential to ensure best practice and that the latest technologies are transferred into our business.'

Clayton Manley, Managing Director, Truflo Marine

University of Birmingham Innovation Vouchers/KTP/Student placements

Learn more

www.birmingham.ac.uk/partners
contact: businesssteam@bham.ac.uk

think energy and environment

Separating the wheat from the chaff



University of Birmingham spinout company, Linear Diagnostics Ltd, together with Molecular Vision Ltd and the Food and Environment Research Council (Fera) have recently announced the award of a £392k grant from the UK's innovation agency, the Technology Strategy Board, to help fund a two year project that will aim to prevent the spread of diseases in harvested crops.

The project aims to develop a low cost, onsite, single test for multiple pathogens that will help prevent the spread of spoilage diseases when crops enter storage or are washed prior to packaging. It will combine Linear Diagnostics, patented linear dichroism detection technique with the optical detection expertise of Molecular Vision and the key reagents and detection expertise of Fera. QV Food, a major food producer, and the Agricultural and

Horticultural Development Board will act as advisors to the project.

Linear Diagnostics is a specialist diagnostic company, established by Bioscience Ventures, a joint venture between Abingdon Health and the University of Birmingham. The Company has developed a proprietary platform technology based on linear dichroism, a molecular spectroscopic technique, to create rapid, onsite tests for the detection of multiple agents. The technology was invented by Professor Tim Dafforn and Dr Matt Hicks from the University's School of Biosciences, and can be applied across a number of sectors including agriculture, veterinary and human healthcare, where the company is currently developing a test for the multiplexed detection of infectious disease agents in sepsis.

'Linear Diagnostics is the second company to emerge from Bioscience Ventures and is further validation of our model to commercialise IP from the University of Birmingham. This is an exciting project, which leverages the collective expertise within the Abingdon Health group and has the potential to transform current agri-food testing and provide significant economic benefits'

Dr Chris Hand, CEO Abingdon Health

University of Birmingham spinout companies

Learn more

www.birmingham.ac.uk/partners
contact: d.coleman@bham.ac.uk

Student Internship goes down a storm!

Vaisala is a global leader in environmental and industrial measurement. They provide a comprehensive range of innovative observation and measurement products and services for chosen weather-related and industrial markets and serve customers in over 150 countries.

Low visibility weather phenomena (such as fog and haze) present potentially serious disruption to transport, and pose real threats to safety. They occur under certain weather conditions and so far prediction has been difficult using numerical weather prediction models, because of a lack of a dense visibility observation network, and the mixture of fog and haze.

The Company decided to offer a student internship that would look at how they could improve this, using their existing observation-based model and extensive data set with the aim of refining the model to improve outcomes. University of Birmingham student, Andrew Hicks, fought off tough competition to take up the internship, and undertook a specific project investigating low visibility phenomena (most significantly fog) particularly with reference to airports. Andrew worked on testing different modifications to the model in an attempt to increase its performance and as a result of his hard work good progress was made during his placement.

'We were able to utilise a motivated individual with up-to-date knowledge and skills for an important project. Previous interns have subsequently joined us full time after completing their degrees, so it can also be a good way of spotting potential employees for the future.'

Geoff Hart, UK Country Manager for Vaisala

Student internships, placements and graduate recruitment

Learn more

www.birmingham.ac.uk/partners/employers
contact: recruiters@contacts.bham.ac.uk

think tailored for business



Contact us...

we use our research expertise to
solve tomorrow’s problems today

Whether you are a large corporate organisation or a small business, and whether you require a short term solution or have a long term project in mind, you can tap into the world-class expertise at the University of Birmingham. We have an excellent team of enthusiastic Business Engagement Partners waiting to learn more about the challenges you are facing. If you are a business seeking a solution, contact one of them today using the details below.

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