



Synthace announced as WEF's only UK Technology Pioneer

Synthace, provider of next-generation software and processes to exponentially improve productivity in bioscience, is the only UK company to have been selected by the World Economic Forum (WEF) as one of the world's '30 most promising Technology Pioneers 2016'.

Originally a UCL spin-out company, Synthace has been an LBIC client since 2011, and expanded into laboratory and office space in LBIC in late 2015. Synthace enables its customers across the

pharmaceutical, agriscience and industrial biotechnology industries to significantly improve biological experimentation and manufacturing processes by using Antha, Synthace's software and operating system. This is in turn helping to find solutions to global problems in healthcare, food production and energy.

The World Economic Forum's Technology Pioneers community recognises early-stage companies from around the world whose technologies and innovations should have a significant impact on business and society. Every year, around 30 companies are selected as Technology Pioneers and given

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WELCOME

Despite uncertainty over recent developments such as Brexit, our clients continue to make advances that will have a positive impact internationally. Innovations such as Proxima Concepts' combined vaccine for use in resource-poor countries or AQIX's fluid that prolongs the viability of donor organs are great examples of what the biotech sector is capable of. RVC Business is a valuable resource for life science companies alongside LBIC, drawing on the world-class research and facilities at the Royal Veterinary College to meet companies' varied needs.

Effective research and development also relies on effective staff, and in this issue we feature in2scienceUK, a non-profit organisation working to promote equality and diversity in the scientific community in order to attract the most talented people.



Lucy Garnsworthy, Editor

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Client News Round-up

Proxima Concepts developing prophylactic plague vaccine

Proxima Concepts has been awarded a £500,000 grant by Innovate UK to develop its oral vaccine platform for use in treatment of plague and Middle East respiratory syndrome (MERS). The 12-month project is a collaboration between Proxima, the Defence Science and Technology Laboratory (DSTL) and the University of Strathclyde.

The prophylactic vaccine will consist of an injected priming dose followed by a self-administered oral capsule that is stable at room temperature. DSTL will validate efficacy of the vaccines. This approach is particularly relevant for use in resource-poor countries where the logistics of storage, distribution and administration are problematic.

Dr New, CSO of Proxima Concepts and the project leader, said "our oral formulations generate immunity in the mucosa, at the site of entry of many dangerous pathogens. Oral immunisation is a very promising approach for combatting respiratory and intestinal diseases, and work has also been published showing potential for protection against bird 'flu and infantile diarrhoea."



LBIC welcomes these new clients to the Centre:

- **Biotech Executive**
- **Cognetivity**
- **Pneumolabs**



Alkol's sugarcane bagasse

Cancer Research Technology forms Artios Pharma to focus on DNA damage response

Cancer Research Technology (CRT) and SV Life Sciences have joined forces to launch Artios Pharma, a new company to develop drugs targeting the DNA damage response in cancer.

CRT Discovery Laboratories have collaborated with Simon Bolton of the Francis Crick Institute and Geoff Higgins and Gillies McKenna from the CRUK/MRC Oxford Institute to develop the portfolio of projects.

Artios has licensed its two lead DNA damage response programmes from CRT and, through an ongoing research collaboration, will work with CRT Discovery Laboratories to progress the lead programmes, and discover and develop additional promising drug targets selected from CRUK's portfolio of DNA damage repair research.

Alkol plays key role in exploring new biofuel production routes

In September 2016, the BIOFOREVER (BIO-based products from FORestry via Economically Viable European Routes) consortium began a three-year €16.2 million project for the conversion of woody biomass to value-adding chemical building blocks. The consortium of 15 European companies, including LBIC client Alkol, covers the entire spectrum of biofuels production, from feedstock to the customer. Alkol's role is to provide non-woody feedstock for the trials in the form of dry crushed residue from its proprietary sugarcane variety EUnenergyCane.

The project will include delivering commercialisation routes for the most promising value chains in industrial scale bio-refineries.

Unibio's new plant opened by Prince of Denmark

HRH Prince Joachim of Denmark officially opened Unibio's new plant in Kalundborg, Denmark, in November. This is the world's first commercial U-Loop fermentation production facility, with capacity to convert methane into around 80 tonnes per year of UniProtein[®], Unibio's proprietary single cell protein.

UniProtein[®] provides a sustainable source of animal feed in a growing market, and a recent study by *Biotechnology and Bioengineering* showed that Unibio's high mass-transfer leads to significant improvements in yields. Unlike soy bean-based animal feed, UniProtein[®] production does not necessitate conversion of land for agriculture, and the only by-product is water. All output from the new plant has been sold to Vestjyllands Andel, a Danish animal feed manufacturer.

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access to WEF initiatives and events. A committee of 68 academics, entrepreneurs, venture capitalists and corporate executives selected the 2016 Technology Pioneers from hundreds of applicants.

"We welcome Synthace in this group of extraordinary pioneers," said Fulvia Montresor, Head of Technology Pioneers at the World Economic Forum. "Synthace is among those companies that help shape the Fourth Industrial Revolution, a technological revolution that will fundamentally alter the way we live, work and relate to one another. Through the

platform of the World Economic Forum, it will be able to scale and share its technology and achieve a larger impact."

Tim Fell, Synthace's Chief Executive Officer, will attend the World Economic Forum Annual Meeting of the New Champions 2017, which brings together leading international figures from industry, government and academia to address global challenges. He said: "We are delighted and proud to have been awarded such a prestigious honour by the WEF. As the only UK company to be in the list, it represents the outstanding quality of our

technology and significant dedication of our team. At Synthace we want to empower biologists around the world, enabling them to better understand and work with the complexities of living systems and help us all to build a bigger, stronger bioeconomy and a more sustainable future. We are confident that this WEF recognition will help accelerate further growth and expand our global impact."

Applications for the 2017 class of Technology Pioneers must be submitted by 3 February 2017, 23.59 CET.

WEF Technology Pioneers

What makes a Technology Pioneer?

The WEF defines its criteria for Technology Pioneers as follows:

- 1. Innovation** Truly innovative in the development of a new technology or the novel application of existing technology.
- 2. Potential impact** Potential to make a substantial and long-term impact on business and society.
- 3. Working prototype** Proof of concept or product on the market, or be in phase II clinical trials or beyond for life sciences companies.
- 4. Viability** Well formulated plans for developments and goals.
- 5. Leadership** Visionary team with the capabilities to drive the company towards success.

PREVIOUS YEARS' TECHNOLOGY PIONEERS INCLUDE

Google
Kickstarter
Twitter
Airbnb
Spotify
Wikimedia

2016 TECHNOLOGY PIONEERS BY SECTOR

Energy (2)
Environment/ natural resources security (4)
Internet (9)
Financial Systems (2)
Health (6)
Food security (2)
Production (5) (includes Synthace)

2016 TECHNOLOGY PIONEERS BY COUNTRY

USA (22)
France (2)
Luxembourg (2)
Canada (1)
Israel (1)
Sweden (1)
United Kingdom (1)

AQIX

Providing a personalised medicine solution



AQIX recently won an International Life Sciences Award from Global Health and Pharma (GHP) for 'Best human biopsied tissue preservative solution' for its patented AQIX® RS-I.

AQIX® RS-I is a simulated, human interstitial fluid, and unlike other preservative solutions it can be used at either body temperature or under 'cold' conditions. AQIX® RS-I can be used for preservation in a number of contexts including biopsy and cell samples or donor organ transplantation. The fluid can even be used to administer drugs or stem cell

therapies intravenously. Specimen stability is also a key factor in the growing market of regenerative medicine and stem cells, where AQIX's product can play a vital role.

Founder Dr Douglas Rees explained further: "The drivers for the increasing demand for intact biopsy and cell samples are in enabling precise diagnostics in general and specifically a necessity for the emerging 'personalised medicine' field, reflected in the growth (15% CAGR) of the biopreservation market, which is expected to reach €410m in 2017. Whereas competition would offer preservation for up to 24 hours, AQIX® RS-I provides for up to

72 hours. This has important advantages both for the logistics and diagnostics of samples within an institution and even more so when shipping of samples across international distances is required.

"Looking ahead, we are embarking on a major marketing initiative to cover EU/USA/RoW so that all procurement agencies will be able to enjoy this advanced technology in the management of sample biopsies for better diagnostic outcomes."

www.aqix.com

RVC Business

Serving the business and scientific community

RVC Business – Tel: +44 (0)20 7691 3560 | Email: business@rvc.ac.uk

Home Office Course Administrator – Email: hocourses@rvc.ac.uk

The Royal Veterinary College (RVC) is internationally recognised as a leading teaching and veterinary research centre, ranked third in the world for veterinary science in the 2016 QS World University Rankings by Subject. The RVC utilises its world-class scientific and clinical knowledge and expertise to improve the lives of both animals and humans. This includes active collaborations with business and industry to develop new technologies and progress science.

RVC Business offers a range of services to the business and scientific community, making the most of the expertise and

high-quality facilities available at its Camden and Potters Bar sites.

The RVC is committed to maintaining and improving standards of animal welfare and all projects performed within its facilities are reviewed by the Animal Welfare and Ethical Review Board.

Clinical Investigation Centre

At the Clinical Investigation Centre (CIC), RVC clinicians and academics work in state-of-the-art facilities to conduct clinical research in naturally occurring diseases in companion animals. Strong links with the veterinary profession and animal owners ensures access to a broad case load.

The CIC is a valuable resource for companies seeking to carry out veterinary clinical trials, explore the possibility of extending a drug's application into the animal market, or investigate new therapeutic initiatives with naturally occurring disease as comparative models of human disease, to the benefit of both species.

Clinical activities:

- Oncology
- Nephrology
- Neurology
- Ophthalmology
- Orthopaedics
- Critical care

Commercial laboratory studies comply with Good Research Practice (GRP). Laboratory techniques available include nucleic acid extraction, cDNA synthesis and progenitor cell production and characterisation for cellular therapies like regenerative medicine.

Contract Research services

The Contract Research Unit can provide comprehensive services ranging from basic research support to full bespoke study design and management. All stages of pre-clinical and clinical product development are supported within the regulatory and non-regulatory environment.

The team of experienced project managers deals with both animal and human health companies, from small biotechnology to large pharmaceutical, both within the UK and internationally.

Projects:

- Preclinical safety studies
- Short- and long-term efficacy studies
- Models of infectious disease
- Antisera production
- Medical device testing

A dedicated study manager co-ordinates facilities, resources and support, in combination with accessing relevant academic or clinical expert advice.

Diagnostic laboratory services

The RVC can offer many innovative tests that are not available elsewhere, delivered by professionally qualified specialists.

Diagnostic services:

- Cytology
- Histology
- Immunohistochemistry
- PCR
- Microbiology
- Serology
- Haematology
- Clinical chemistry
- Infectious disease pathology and pathogenesis
- Muscle biopsies
- Neuropathology

Home Office licensee training

The RVC is accredited by the Royal Society of Biology to provide recognised training courses for individuals seeking to apply to the Home Office for either Personal or Project Licences under the Animals (Scientific Procedures) Act 1986, updated by EU directive 2010/63/EU (ASPA).

The Home Office Licence courses are taught by active Named Veterinary Surgeons from the RVC. Courses are organised into modules according to the type of licence required. General modules may also be of use for staff who do not work directly with animals, but who would benefit from knowledge of the relevant legislation.

The courses are offered through either a traditional classroom format or distance learning. Following the modular courses, additional advanced half-day courses and bespoke workshops can be held either at the RVC or at the client's facility.

In2scienceUK

promoting access and diversity in the scientific community



in2scienceUK is a non-profit organisation that supports young people from low income backgrounds to attend university to study science, technology and engineering and maths (STEM) degrees and progress to careers in the STEM sector.

Promoting access and diversity within the scientific community is vital if the UK is to maximise talent, creativity and success. However, social mobility continues to drop in the UK and our earnings are more likely to reflect our fathers' than any other country in the developed world, according to a report by the Organisation for Economic Co-operation and Development. Recent studies by Daniel Laurison and Sam Friedman from the London School of Economics found that bright students from the poorest backgrounds are unable to



pursue their interest in science due to a lack of information, opportunities and role models, particularly

compared to their more affluent peers.

Figures from the Sutton Trust (a charity working to 'combat educational inequality and prevent the subsequent waste of talent') and UCAS show that 15% of children in the UK receive a free school

"We are thrilled to be involved. As a business that has always closely collaborated with the scientific community, we believe inspiring the next generation is critical to advancing future scientific research."

— Alan Hirzel, CEO of Abcam

meal – a measure of poverty – and that just 18% of these students will progress to university and only 3.3% to a top university. By contrast, of the 7% of the UK

population that is privately educated, 98% will progress to university and these pupils are six times more likely to attend a top university.

In2scienceUK is an award-winning charity that targets this inequality and was



founded by research scientists who wanted to make a real difference in their local communities. The scheme puts researchers at

the heart of the solution to provide young people from low-income backgrounds with role models and an understanding of what a science career and research really involve, through hosting a two-week work placement. A series of workshops delivered by the in2scienceUK team ensures students have the skills, confidence and knowledge to progress to top universities, apprenticeships and science careers.

Professor Gibb from UCL has hosted in2scienceUK students for five years and

said: "Being able to support such a bright student who would not usually have the opportunity to



have this experience was not only enjoyable, I could see it made a real difference".

Now in its sixth year, in2scienceUK has grown in popularity, supporting over 500

young people from low-income backgrounds. 78% of in2scienceUK students progress to university and 54% to a top university.

"The statistics reflect what a positive impact and transformational difference

communities can make. Our mission is to increase diversity and equal opportunity within the sector and is the driving force of this impactful scheme" says Dr Rebecca McKelvey, Director and founder of the charity.

In2scienceUK are supported by science



societies, science companies and academic institutions, but are seeking organisations interested in providing

placements to support more young people to achieve their potential in science.

If your company might be able to host a placement, please contact R.mckelvey@in2scienceuk.org

Is it time to invest in your managers and teams?

Elisabeth Goodman, from LBIC's Business Support Network member RiverRhee, highlights the importance of effective management.

Your company is growing, rapidly. You would like your managers to feel confident and capable, to give your internal teams and your external clients confidence in that growth.

You are generating new projects, at a pace, to meet the demands of external clients and to achieve your internal goals. You would like your teams to excel, to fulfill those goals and demands, and to be ready for more.

Is it time to invest in your managers and teams?

RiverRhee's courses, workshops and one-to-one coaching develop your managers' confidence and capabilities, enable your teams to excel and reinforce your company's growth.

Get in touch with Elisabeth Goodman to find out more, to book a place on the next available courses, to arrange internal workshops for your teams or to book one-to-one coaching for your managers.

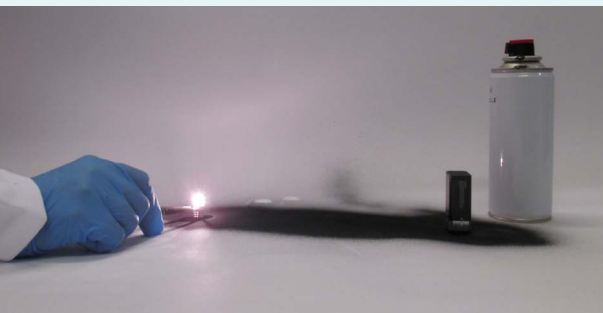


Contact elisabeth@riverrhee.com
telephone 07876 130 817

Instant spray-on conductive material by Fabrican

Fabrican has developed a sprayable conductive material, which can be applied from an aerosol and forms an electrical circuit on any suitable surface.

Fabrican's spray-on conductive layer can be instantly applied and conforms to any



shape, for example onto clothes. The wearable low-voltage electrical circuit is entirely customisable and can be used to

power LEDs, provide electrical stimulation, or connect wearable technologies to a portable power source. Used in combination with stencilling and thermochromatic pigments, the resultant conductive fabric could power garments that change colour throughout the day. Furthermore, non-conductive materials can be made

conductive very quickly by spraying a film on top of the desired material. The film can be tailored to be highly adhesive or easily peel-able, based on the intended use.

Away from the field of fashion, sprayable electrical circuits have practically limitless applications.

Precision industrial tests can be facilitated by materials offering instant, disposable conductivity. Repairs to electronic systems affected by thermal

expansion or the ability to restore interconnections between components will be just a spray away. Larger-scale applications might include cabling, with sprayed conductive pathways sandwiched within prefabricated building materials, ready for connection to the power source on site. The spray-on conductive film can also be combined with various encapsulated micro- or nano-particles that can impart additional properties to the film.

Fabrican's spray-on conductive coating technology can simplify many consumer and industrial applications and provide a whole new platform for wearable technology. The company has already been exploring healthcare applications for its spray-on fabric, and this new innovation opens up even more opportunities.

LBIC's Virtual Client package

The simple way to get a London base

While some life science companies need office or laboratory space in London, this is not always essential. LBIC offers a 'virtual tenancy' for companies who need a London hub without the need for a permanent physical space on site.

Since its launch in 2008, a vast range of companies have taken up the virtual tenancy offer, from tiny start-ups wishing to build a business gradually, to established

international corporations looking for a reliable base in London. The varied list of benefits means there is an aspect to appeal to most companies.

Benefits of an LBIC Virtual tenancy

- **A Central London address** less than 10 minutes' walk from the international transport links of St Pancras International station
- **Discounted client rates** on meeting rooms, catering and video conferencing facilities
- **A dedicated telephone line** that can be answered in the name of the company and redirected to a number of choice
- **Post collection** and redirection service
- **Access to RVC equipment** and facilities, including the stunning Lightwell café
- **One-year complimentary Gold membership** of One Nucleus, the international membership organisation for life science and healthcare companies
- **Reception services** and courier bookings at client rates
- **Visible profile within LBIC** and through our marketing and communications

The set-up process is quick and straightforward

Contact us at lbic@rvc.ac.uk or call +44 (0) 20 7691 1122 today to enquire about becoming a Virtual client.

Additional charges may apply for certain services. A full list of charges can be supplied on request.

Would you like to feature in our newsletter?

If you would like to contribute to a future issue of LBIC News, contact **Lucy Garnsworthy** on +44 (0) 20 7691 0982 or email lgarnsworthy@rvc.ac.uk

Contact us

LBIC has been supporting life sciences companies since 2001. Today we host more than 60 companies, ranging from entrepreneurial start-ups to more established UK companies and overseas subsidiaries from Europe, North America and Asia Pacific. The Centre is owned



and operated by the prestigious Royal Veterinary College, one of the independent Colleges of the University of London.

The Centre is a 10-minute walk from St Pancras International for Eurostar services and the site of The Francis Crick Institute.

Our management team comprises:

Dr Ken Larkin
Chief Executive

Janette Pickles
Operations Manager

Lucy Garnsworthy
Communications Manager

For further information, or to enquire about our services, contact:

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