QMB Innovation Centre

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H1 2019

Discovery

NEWS, VIEWS AND EVENTS AT QMB

IN THIS ISSUE

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EDITOR'S WELCOME

Welcome to the latest issue of QMB's Newsletter.

Women in Science is normally celebrated in February but here at QMB we like to celebrate it all year round.

We caught up with Ros Hannen and Diana Alexieva, who are both exploring how to commercialise intellectual property through life science academic programmes designed to give participants the skills and knowledge to succeed.

Ros, a Skin Biologist at Queen Mary University of London, secured a place on the MTSC Venture Accelerator Programme, which gives participants the opportunity to commercialise their own research. Ros has got a fascinating story to tell and one which should inspire all Early Career STEM Researchers, Postdocs, PhD and Masters students to sign up.

Meanwhile Diana has joined QMI for three months as part of the LifeArc Fellowship Programme, which aims to equip academic life scientists at the graduate or post-doctoral level with the skills and knowledge to build a career in technology transfer.

We also catch up with Sven Benn, the recently appointed Programme Director of the new Barts Life Sciences cluster in Whitechapel to ask him how it's going.

The Life Sciences Cluster promises to be a noticeable regeneration project for UK plc encompassing the Royal London Hospital, Barts and the London School of Medicine and Dentistry. It will create thousands of jobs and provide opportunities for research, education and residential space in and around Whitechapel. More crucially for QMB, it will provide more opportunities to create incubator space and concomitant jobs for young STEM graduates.

Also in this issue, we hear from QMB tenants ADC Therapeutics which has just closed a $76 million expansion of its series financing, bringing the total gross proceeds to $276 million, and hVIVO, which has been supporting Enanta Pharmaceuticals, a US-based research and development biotechnology company, in the development of its novel Respiratory Syncytial Virus (RSV) therapy.

And finally, we say farewell to Rob Lambkin-Williams who is leaving hVIVO after 24 years to work as a freelance consultant.

We're eager to hear your views too, so please share your feedback in the comments section on our website, or join the conversation on our Twitter page. For more updates and the latest news from QMB, please visit our website.

Nas

ADC Therapeutics
Completes Series E Financing Expansion and prepares lead drug for 2020 filing

ADC Therapeutics (ADCT) has just closed a $76 million expansion of its series E financing, bringing the total gross proceeds to $276 million.

Since its inception in 2011, ACDT has raised $531 million to advance its pipeline of pyrrolobenzodiazepine (PBD)-based antibody-drug conjugates for the treatment of haematological cancer and solid tumours.

The company is near to completing the pivotal phase 2 study for ADCT-402, its lead programme, in relapsed or refractory diffuse large B-cell lymphoma. The additional $76 million, raised from new and existing investors, will fund preparations for a potential Biologic License Application (BLA) for ADCT-402 in the second half of 2020. It will also allow ADCT to make preparations for a pivotal Phase II trial of ADCT-301 in Hodgkin lymphoma, based on the company's recent end of Phase I meeting with the FDA.

ADC Therapeutics plans to complete enrolment in its pivotal Phase II trial of ADCT-402 in patients imminently and CEO Chris Martin, Ph.D. expects to report interim results in the third quarter of 2019.

Chris Martin, PhD, Chief Executive Officer of ADC Therapeutics, said: "We are delighted to expand our Series E round, which provides us with a strong balance sheet to fund preparations for a potential Biologic License Application (BLA) for ADCT-402 (loncastuximab tesirine) in relapsed or refractory diffuse large B-cell lymphoma (DLBCL) in the second half of 2020, as well as preparations for a pivotal Phase II trial of ADCT-301 (camidanlumab tesirine) in Hodgkin lymphoma based on our recent end of Phase I meeting with the U.S. Food and Drug Administration."

The company plans to follow the BLA for ADCT-402 with a filing for ADCT-301, which it's developing for Hodgkin and non-Hodgkin lymphomas and solid tumours. It plans to launch its first product, ADCT-402, in 2021, marketing it itself in North America from its New Jersey offices and with partners in the rest of the world, so is busy recruiting on the commercial and regulatory side of the organisation.

QMB Interview: Sven Bunn, Programme Director - Barts Life Sciences, QMUL / Barts Health NHS Trust

Sven Bunn

The new Barts Life Sciences cluster in Whitechapel is taking shape, with the appointment in January of Sven Bunn as Programme Director.

The new Barts Life Sciences cluster in Whitechapel is taking shape, with the appointment in January of Sven Bunn as Programme Director.

Sven's background is in health services management, having worked in various operational and strategic roles in the NHS including 12 years at Great Ormond Street Hospital.

He came to Barts Health NHS Trust in 2013 as Assistant Director of Strategy, helping to join up the Trust's health services with local authority and community services, before going on to work on planning for health care services across North East London.

Sven took on the life sciences role for Barts' Health three years' ago, before formally starting on a joint Queen Mary/Barts role in January 2019.

The Life Sciences Cluster promises to be a huge regeneration project encompassing the Royal London Hospital, Barts and the London School of Medicine and Dentistry, which will create thousands of jobs and provide opportunities for research, education and residential space in and around Whitechapel. QMB caught up with Sven to ask him about the life science cluster and what it means for the area and what his vision is for the project.

Why are we getting a Life Sciences Cluster in Whitechapel?

The need for pioneering, effective and affordable innovations in healthcare has never been greater. People in the UK, and the world, are living longer but not necessarily healthier lives. Sustainability is a challenge for healthcare systems due to the growing burden of chronic diseases but also a decline in life expectancy due to modern lifestyle and widening inequalities. Tackling these challenges requires innovation that is created through a potent mix of discovery, diversity and delivery.

The power of discovery lies in the best minds having the right experience and the right tools to find the solutions for the future. The potential of diversity lies in the difference that multiple experiences, backgrounds and skills can have to

unearth tomorrow's healthcare ideas. The key to delivery is ensuring that these innovations will work at scale in the real world and reflect the needs of a diverse patient population.

Do you have a team around you?

My appointment also coincided with the appointment of Professor Rakesh Uppal, a consultant cardiac surgeon at Barts Heart Centre and Professor of Cardiovascular Surgery at Barts and the London School of Medicine. Rakesh is responsible for clinical and academic leadership of the programme. We are currently recruiting a director of engagement and partnerships who will be responsible for the commercial development of the programme.

Can you tell us who the other / broader stakeholders are?

The site is now owned by the Department of Health and Social Care (DHSC) and, together with the Trust and University, we are the key stakeholders. We're also working closely with the Tower Hamlets Clinical Commissioning Group (CCG), London Borough of Tower Hamlets, the Mayor of London and the Greater London Authority, Genomics England and London's Air Ambulance.

Is there central government / City Hall financial commitment to the initiative?

The development was featured in the Government's "Life Sciences Sector Deal 2" document published last December, and we have strong support from the DHSC, Office for Life Sciences and City Hall.

Can you give me a rough timeline for the development of the Centre for Life Sciences in Whitechapel, can we say when it's going to break ground?

Although we probably won't be seeing any new buildings for another few years, the owners of the site (DHSC) have started work on updating the development master plan. They will apply for planning permission next year, and subject to planning approval, it's likely that construction work would begin in 2023.

What are the next steps for the project?

Our current priority is to organise and collate all our data resources to make them accessible to researchers so they can start to use them. We're also working on bids to fund new infrastructure for the use of data and create new jobs in AI, so that we can generate useful insights on data use that will affect health care, diagnostics, and decision-making on treatments.

We also want to create some innovation space so we can start to attract small start-ups and provide support for spin out companies from the hospital.

Also, we're developing training and apprenticeship programmes at the hospital and university which focus on technical disciplines in data and engineering.

What is the overarching vision for the project ?

Barts Health NHS Trust (BHT) and Queen Mary University of London (QMUL) have joined forces to shape the future of healthcare in East London and beyond through Barts Life Sciences (BLS). The vision of BLS is to create an ecosystem that will accelerate, with confidence and safety, research and development through the innovation chain from the bench to the patient; transform health and wellbeing, inequalities and patient care throughout the UK; and finally, to create a sustainable National Health Service which will be recognised as world-leading in prevention, prediction and precision health care.

How does the existing QMB business incubator fit in with the overall vision?

We want to create more innovation space so we're currently working on further funding bids to refurbish space at the QMB incubator facility, so we can start to attract small start-ups, and provide support for spin out companies from the hospital and university.

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INTERVIEW

Do you see scope for further expansion of SME bio-techs in Whitechapel?

It's clear from the White City experience that there is demand for biotech incubator space in London, so we see the new development and some potential interim expansion meeting a real need.

Why is this so important to the project and east London?

It's a massive project with amazing potential to improve healthcare, by taking discovery and innovation through a development process, and providing new treatments. That can make a huge difference to people's lives, not just for the local population, but anywhere and everywhere, as the things we do here can be applied all over the world.

There's also potential to have a hugely positive impact on the local community through the creation of jobs, economic benefits, and supporting services for the local community. And having a new life sciences campus in Whitechapel will really transform the physical environment of the local area.

We're really hoping that Barts Life Sciences can help make Whitechapel an exciting and desirable place to work from an academic and research point of view, and a new and vibrant place to live.

Is there a wealth generation aspect to the initiative (in addition to improving public health?) – will it look to be profitable?

The campus will include a substantial amount of space for commercial partners. Developing and testing new products are essential stages in taking innovation forward into clinical practice.

Is there a jobs target? How many jobs will it create?

Based on our development plans, PwC estimated that about 3,500 jobs could be created locally, with an additional 7,000 created indirectly, as suppliers and for supporting services.

Where do you see the development positioned in 10-20 years?

This puts us at the leading edge of life sciences development. Currently, there are a relatively small number of world-leading campuses for life sciences – Boston, Singapore and Cambridge.

Barts Life Sciences could put us up amongst those world-leaders and give us a global presence. That would mean we're in a much better position to attract new staff, retain existing staff, and attract grant funding for new and innovative projects.

Skin Biologist eyes new business opportunities through **MTSC Venture Accelerator Programme**

MedTech SuperConnector™


Ros Hannen

The old saying goes that 'beauty is only skin deep' but Ros Hannen, a skin biologist at Queen Mary University of London, insists it goes much deeper than that.

"The skin biologist in me says yes, of course it is, skin is amazing. But the endocrinologist in me says no, systemic hormones have a large impact on skin biology, how skin ages and recovers from wounding," said Ros.

Ros added: "Skin is a very special organ. It can make a vast array of hormones, not just vitamin D, including cortisol, but hormones can have a big effect on the health of the skin, how it ages and how it heals."

It's that passion for her subject that saw Ros being accepted onto the MTSC Challenge Accelerator programme which gives Research Fellows, Early Career Researchers, Postdocs, PhD and Masters students the opportunity to develop their research commercially. Through the support of the MTSC and QMI, Ros aims to change in vitro skin testing practices globally to one that improves accuracy compared to existing methods.

The MedTech SuperConnector (MTSC) is an open experiment in medtech acceleration, combining research from eight academic institutions, their technology transfer offices, three science business incubators, industry expertise, NHS patients and other enabling partners. The MTSC partner institutions include Imperial College London, Queen Mary University of London, Bucks New University, Francis Crick Institute, Royal College of Art, Royal College of Music, Institute of Cancer Research and the Royal Veterinary College.

As part of the six month Venture Accelerator Programme, each successful participant receives a salary replacement of eight months (full-time) away from the lab to develop your medical technology into a business venture. The programme offers entrepreneurship masterclasses, access to co-working space, an allowance for travel and, on a per team basis, access to £45,000 for consumables and product development, as well as a dedicated advisor, a structured product development plan and mentoring support. QMI are supporting Ros by advising her on the spinout process, securing intellectual property rights and patents.

Dr Graeme Brown, Director of Technology Transfer at QMUL and Executive Director of QMI, said: "We are delighted that Ros got accepted onto the MTSC Challenge Accelerator programme and we're thrilled to be able to work with her on this very exciting project, which has the potential to revolutionise skin testing on a global scale for a broad range of industries and applications."

Ros completed a PhD in dermatoendocrinology but hadn't originally considered undertaking research into human skin. However, she developed a fascination for endocrinology while supporting a new treatment for multiple sclerosis. The endocrine system is the collection of glands that produce hormones that regulate metabolism, growth and development, tissue function, sexual function, reproduction, sleep, and mood, among other things.

"If you'd said to me when I was younger that I would be establishing a business to change skin care testing practices, I would have laughed. I actually fell into this field by accident," said Ros.

Ros hasn't looked back. Her PhD in dermatoendocrinology has put her on the cusp of developing groundbreaking research that has far reaching applications for the cosmetics and health device industry. It has also led her to find better methods for experimenting on human skin in the lab.

"Skin is possibly the only healthy human tissue that people readily give away, through plastic surgery for example, and it's a rich tissue source for understanding basic biology. Some of the biggest scientific breakthroughs have originated through studying the skin, especially stem cell technology, so it's an exciting field to be in," said Ros.

"We have created a new skin testing platform that we believe is the most effective way to maintain skin in culture. While scientifically we have come a long way in developing new types of 3D skin models, fundamentally, there are still limitations. Many in vitro skin tests are only 60-80% accurate and often require a number of combined tests to increase accuracy above 95%," said Ros.

Cosmetics Europe states there are no suitable sub-acute (2-14 days) or long-term (14 days plus) skin tests, and the OECD (which provides regulatory guidelines to the cosmetics industry) stipulates that human skin should be used within 24 hours for skin absorption tests. So finding a better way to maintain human skin in culture would radically change testing accuracy and open the door to new types of testing that were previously not possible.

As this sort of research could support the cosmetics industry, the market is potentially huge, with conservative estimates placing global R&D spend at between $5.07 billion and $15.21 billion. And that's before you get to medical aesthetic device R&D which is set to grow to $11.2 billion by 2021, as well as dermatology therapeutics R&D predicted to reach $53.9bn in 2023.

But academics often get characterised, often quite wrongly, for being too blinkered when it comes to capitalising on the commercial opportunities in favour of following the science rather than exploring the commercial benefits.

"I think this view is changing, both from industry and academia. There is a funding crisis in pharma where the cost of drug development is close to outstripping the return of investment. As a result, pharma's business model is changing and more and more early stage drug discovery is now happening within academia. Cosmetics and consumer goods companies are increasingly outsourcing their R&D to academia and contract research organisations," said Ros.

Ros has already forged strong relationships with some large blue-chip organisations, including securing funding from Unilever for a PhD student, and is in early stage talks with a number of skin care and medical aesthetic device companies.

So how have you benefited from the MTSC Challenge Accelerator' programme?

"I love the ideas and energy from the people I've been working with, and how we were constantly encouraged to think bigger. As a scientist by training, I have spent my life looking at the microscopic, so it is exhilarating to change focus to a global perspective. The mindset was a big contrast to academia, which thrives on technical detail, critical review and analysis," said Ros.
Each member of Ros' cohort was connected to two industry leading mentors. Ros' mentors were Rani Saad, a serial entrepreneur and major investor, and Kateryna Portmann, a business developer supporting Medopad, a British healthcare technology company based in London.

"Together they helped me reconsider my thought processes from academic to commercial needs. Their advice and expertise was invaluable, but that's the biggest benefit of the MTSC programme, the funding it provides and the connections it brings." said Ros.

Are you developing a technology with applications in healthcare? The closing date for the next Venture Accelerator Programme is July 21 for an October 21 start date. If you're interested, please go to medtechsuperconnector.com for more information. If you're interested in hearing more about Ros' project and would like to invest, then please contact: hello@keratify.com

Health Minister hails technology in **health care revolution**

People suffering with chronic diseases will use monitoring devices, connected to their doctors, to receive 24/7 care in the future, according to Health Minister Nicola Blackwood.

Speaking at the CogX conference on AI and emerging technologies, she stated that, in the future, chronically-ill patients will have devices to constantly measure their heart rate, blood pressure, breathing and weight to track their condition and feed that information back to the NHS.

The Baroness said: "We are essentially talking about a 24-hour connection between the patient and those monitoring and caring for them. Patients live with their condition 24/7 and our care should reflect that."

The Baroness talked about NHSX, a joint organisation for digital, data and technology, which is taking forward digital transformation in the NHS, allowing patients and staff to benefit from the latest digital systems and technology. NHSX aims to cut the amount of time clinicians spend inputting and accessing the data in NHS systems; make it easier for patients to access key NHS services on their smartphones; and to ensure essential diagnostic information can be accessed safely. The creation of NHSX aims to help maintain people's wellbeing instead of just reacting to them falling ill.

In discussing efforts to develop the use of AI and other technology in the NHS, she stated that while some developments provide a long term potential, there is a need to make things better for patients and staff as soon as possible.

"The average time it takes for new technologies to perforate through the NHS at the moment is 17 years and that is too long," she said.

"That pace of technology development is not viable so we need to make sure that once the technology has been proven to deliver benefits for patients in the system that it will go throughout the system."

She concluded, "The fair and ethical use of health data by researchers and commercial partners can deliver better patient outcomes, improve safety, and contribute to a thriving economy. We have a responsibility to capitalise on these opportunities and ensure we do not miss our chance to save lives and money, but we must do this in the right way within a standardised, ethically and socially acceptable framework".

Baroness Nicola Blackwood

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hVIVO's RSV challenge model delivers positive results for **Enanta's** novel RSV therapy

hVIVO better treatments, faster

ENANTA Pharmaceuticals

hVIVO plc has supported Enanta Pharmaceuticals Inc, a US-based research and development biotechnology company, in the development of Enanta's novel Respiratory Syncytial Virus (RSV) therapy, following the release of positive top-line results from an RSV challenge study conducted by hVIVO.

The US drug developer used hVIVO to conduct a human challenge study in its specialist clinical facility at QMB in London, using its industry leading RSV challenge study protocol that delivered positive clinical proof of concept results supporting further development of Enanta's novel N-protein inhibitor EDP-938. RSV is an infection of the lungs and respiratory tract that commonly affects the young and the elderly.

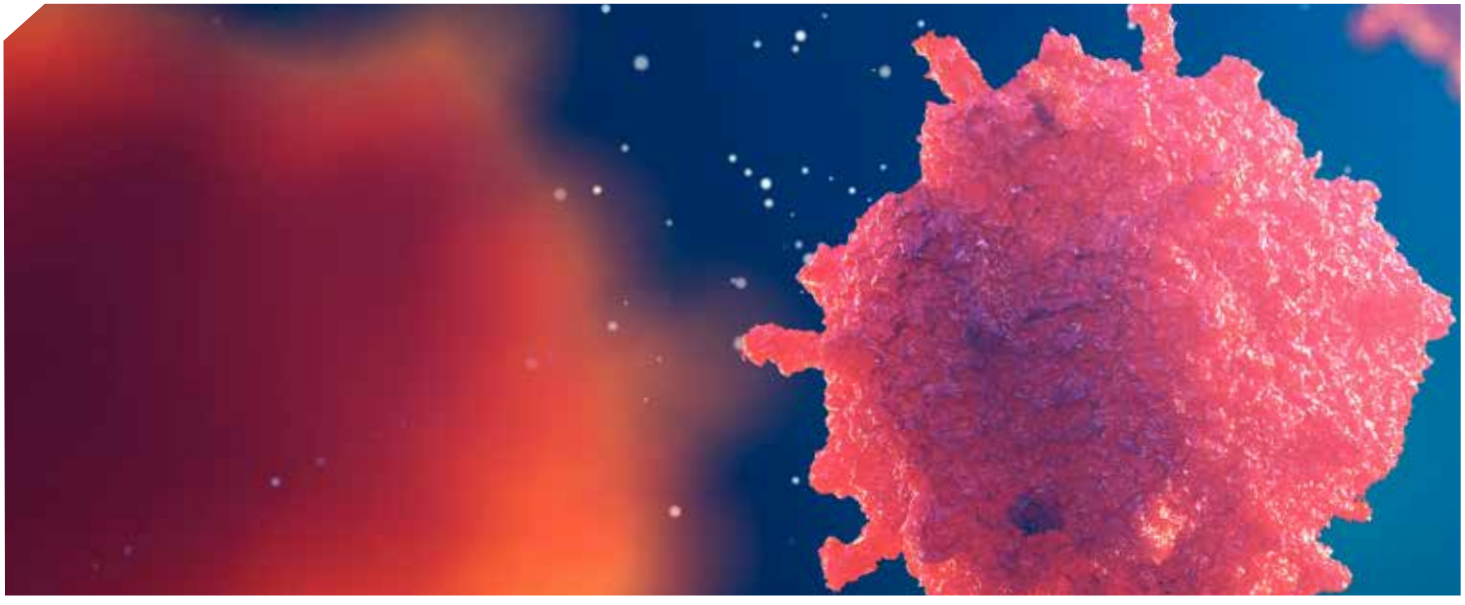
The study demonstrated that Enanta Pharmaceuticals' N-protein inhibitor, EDP-938, achieved "highly statistically significant" reductions in viral load and in resolution of clinical symptoms compared to a placebo in healthy adults infected with RSV.

Trevor Phillips

"We are pleased to have been able to support Enanta in the development of this novel therapy," said hVIVO chairman, Dr Trevor Phillips.

"These positive clinical proof of concept results support the further development of EDP-938. The study conducted by hVIVO highlights the value that can be obtained from challenge studies to rapidly establish clear indications of clinical efficacy and dose-response and deliver supporting safety data in a cost-effective controlled study at an early stage of a product's development," said Phillips.

He added: "The data also further validate the value of our RSV challenge model that we believe to be the only such RSV model currently commercially available. The Company's contract pipeline is experiencing a strong demand for RSV challenge study services, which is reflective of the unmet medical need that companies are addressing and the results of this study are further endorsement of the value of the hVIVO challenge model in RSV and the benefit of viral challenge models in clinical development in general."



Dr Rob Lambkin-Williams leaves hVIVO to focus on his own consultancy business


Dr Rob Lambkin-Williams

After more than twenty years with hVIVO, Dr Rob Lambkin-Williams will be leaving the company on 16 July 2019.

Rob was one of the founding employees of hVIVO, or Retroscreen Virology as it was when he helped to set up the company in 1995 as a Senior Scientist. Rob oversaw the first of many human-viral-challenge studies, filling a gap left after the state-funded Common Cold Institute was shut down in the mid-1990s. hVIVO continues to evolve and Rob will now focus on his own specialist consultancy business: VirologyConsult.com

"I'm very proud of what we've achieved over the years and I look forward to continuing to work with hVIVO as the business continues to evolve" said Rob.

Rob is an expert in respiratory viruses and HIV. He has been responsible for designing and supervising in excess of 40 studies conducted at hVIVO since 2001, acting as the Principal Investigator on many of them.

Long before hVIVO's current purpose-built FluCamp facility was opened at QMB, Rob conducted early trials in a hall of residence at Queen Mary University because "you could do that back then," says Rob.

Rob added: "When hVIVO first started, we worked out of a semi-detached house on Turner Street next door to Queen Mary's Medical School and the Royal London Hospital. We also retro-fitted old hotels, as others have done, to enable our work, before a purpose-built state-of-the-art facility was built at QMB."

Rob completed his PhD in Avian Influenza (Bird Flu) at the University of Warwick in 1993 – long before it became a popular news item – and is often the first media point-of-contact regarding Avian Influenza and other virus-related topics.

Rob has co-authored numerous papers, including those in the New England Journal of Medicine (NEJM), the Proceedings of the National Academy of Science (PNAS), the American Journal of Respiratory and Critical Care Medicine (the Blue Journal) and Nature Medicine, which have all contributed to our understanding of respiratory viruses, antivirals and the vaccines used against them, potentially saving millions of lives in the future.

Rob also recently wrote a significant review article on the Human Viral Challenge model, which was published in the journal BMC Respiratory Research.

hVIVO said it looks forward to having the opportunity of continuing to work with Rob in the future, where his expertise and extensive experience will be valued.

Trevor Phillips, Executive Chairman of hVIVO, commented: "On behalf of the Board and the Executive Leadership team, I would like to thank Rob for his significant contribution to the Company and wish him very best wishes for the future."

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Changes to SME R&D tax credit scheme could harm a thriving life science sector says BIA

The BioIndustry Association (BIA) is calling for the Government to think again on proposals which could see harmful changes to the way that SMEs are supported through R&D tax credits.

The BIA is calling on companies from across the life sciences sector, particularly SMEs, to respond to the Treasury and HMRC consultation to ensure that their voice is heard.

The Government is proposing to introduce a cap on the value of cash payments loss-making SMEs can receive through the R&D tax credits scheme. These payments are a valuable source of finance for young companies trying to get from one venture capital fundraising to the next.

A public consultation was launched in March and closed on 24 May, detailing that cash claims would be capped at three-times the PAYE and National Insurance Contributions (NIC) liabilities of a company.

The Government says it is exploring options to reduce the impact on 'genuine companies'. The aim is to prevent fraud, but analysis by the BIA shows the measure will have unintended consequences for life science companies, with between 50% and 60% of genuine SMEs potentially affected. These companies include start-ups and those funding clinical trials in a sector characterised by a high level of R&D outsourcing.

Outsourcing R&D to universities, contractors, and other companies is common due to the high setup costs of facilities and the specialised nature of research. Companies that take this outsourcing approach have a high R&D spend and a small PAYE/NIC liability and so they will see their cash payments capped if the proposals are introduced. Many companies will not have the capital or option to change their outsourcing business model and will either need to scale back their R&D or will not be viable at all. If this became government policy, it would be difficult to see how the Government's stated ambition to raise R&D investment to 2.4% of GDP by 2027 could be achieved.

Steve Bates, OBE

Steve Bates OBE, CEO of the BIA said: "The UK life sciences sector is an economic success story, creating highly skilled jobs and providing a platform for the UK to be at forefront of innovative science and treatments that will benefit patients now and going into the future."

Bates added: "While the Government's consultation was done with the best of intentions, if these proposals are introduced, it could put a hard brake on the UK's rapidly expanding biotech start-up and scale-up community and affect other tech sectors in similar ways. It will also have knock-on effects for hundreds of service and supply SMEs across the UK who will see a loss of business, as well as universities and hospitals that receive significant funding from industry to conduct clinical research."

QMI welcomes its first LifeArc Fellow: **Diana Alexieva**

Queen Mary Innovation (QMI) recently welcomed Diana Alexieva to its team in what could be the start of a long and glittering career in technology transfer.

Diana joined QMI in May as part of the LifeArc Fellowship Programme, which aims to equip academic life scientists at the graduate or post-doctoral level with the skills and knowledge to build a career in technology transfer.

The Fellowship Programme is a partnership between LifeArc, formerly known as the Medical Research Council Technology. As part of the year-long programme, participants spend three months each at four of London's technology transfer centres. Diana is the first of four to join over the next 12 months. Her first three months will be spent at QMI, the technology transfer arm of Queen Mary University of London, where Diana will look at early stage engagement with scientists, the assessment of technology disclosures, including due diligence and the basics of intellectual property management, and proof of concept funding.

From QMI, Diana will move to UCL Business, the commercialisation company of University College London and its partner NHS Trusts, to gain a better understanding of licensing transactions, deal valuation and marketing. From there, she will go to Imperial Innovations to look at the formation and management of spin-out companies. Diana will then complete her fellowship at LifeArc where she will learn about early stage drug discovery, including target selection, due diligence and intellectual property management, with a focus on 'composition of matter' patents and research collaborations.

The collaborative nature of the programme is vital for improving the quality of the technology transfer services and training people at an early stage of their career.

Diana said: "I think it's important to gain different perspectives on technology transfer because it creates an opportunity for each organisation to acknowledge and consider the differences in order to see if there is any room for improvement based on the experience of others."

While at Imperial, Diana worked under Dr Nicholas Dibb in the Faculty of Medicine, Department of Surgery & Cancer, partially focussing on isomiRs, miRNA variants, before undertaking a PhD in the same lab. Her project concentrated on miRNA transcription and processing in embryonic stem cells.
"I really enjoyed my area of research because both projects addressed basic biology questions, with a very broad range of implications, especially early development and cancer," said Diana.

To get on the LifeArc Fellowship Programme, Diana had to demonstrate a genuine aptitude and enthusiasm for describing complex scientific information in accessible terms, combined with a passion for commercialising technologies for patients who might them. At the interview stage, Diana had to give a presentation to show an understanding of the challenges and opportunities in the field of technology transfer in the form, which was then followed by questions from a panel.

Diana said: "I have really enjoyed the programme so far and I feel like technology transfer is a career which I can definitely see myself pursuing. As for specialising, I do have a good understanding of oncology and it would certainly be something I would consider."

Dr Graeme Brown, Director of Technology Transfer at QMUL and Executive Director of QMI, added: "As an industry we thrive on the exchange of knowledge and ideas, which are essential ingredients for bringing a product to market, but we are only as good as the people we attract to build those businesses. We are therefore delighted to be part of the LifeArc Fellowship Programme and we welcome Diana to QMI in what we hope will be the start of a long and exciting career in technology transfer."

Diana Alexieva

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Connecting **SMEs** to **QMUL** academics

SMEs and start-ups met with academics spearheading projects at the vanguard of digital and AI technology, at a 'MedTech Connects' event at QMB.

With collaborations and partnerships between industry and medical research a key pillar to accelerated commercialisation, the event was designed to allow businesses to network and connect with potential future partners from within Queen Mary University of London, Barts Health and the Blizard Institute.

Guest speakers, including Professor Rakesh Uppal, Consultant Cardiac Surgeon, Barts Heart Centre and Dr William Marsh, Senior Lecturer, School of Electronic Engineering and Computer Science, QMUL, discussed the use of cutting edge technology in their work, including Virtual Reality robotic training programmes, the use of Artificial Intelligence (AI) and medical data to improve patient outcomes, phenotypic screening and 'Organ-on-a-Chip' models.

Professor Colin Bailey, President and Principal at QMUL, gave an opening address and outlined how QMUL benefits from diversity, quality of research and digital expertise:
Professor Colin Bailey said: "Our focus is on transitional research and clinical excellence. We have the patient data and the diversity of local population which will allow us to accelerate that work, conducting global studies locally. We want to create an ecosystem to accelerate, with confidence and safety, through the innovation chain from the bench to the patient.

He added: "The digital environment is one of our areas of expertise. Health data, AI, the ethics around it, the legal aspects of it, come together here, all in one place."

Following the presentations, industry guests were invited to 'Meet the academics' sessions, where they had the opportunity to have one-on-one conversations with the academics and their department colleagues to explore collaboration possibilities.

Personalised Medicines and Bionics to Drive the Future of the UK's **£70 Billion Life Sciences Sector**


Francesco Arcangeli

Wearable technology, diagnostic devices, personalised medicines and bionics are four key opportunities for the UK's £70-billion-revenue life sciences sector, reveals a new report by Santander and manufacturing organisation Make UK, The Manufacturers' Organisation.

The sector's revenue grew by £6.8 billion in 2017, the latest available information shows, with an additional 298 businesses and sites joining the industry. However, while wearables and diagnostic devices present a great opportunity for the sector, personal data and privacy must be protected, warns the report.

The profound growth in wearable consumer technologies and diagnostic devices like smart watches and activity trackers, which monitor and record health metrics, represent perhaps the biggest opportunity, says the report.

Alongside personalised precision medicine, these are expected to revolutionise the approach to medicine and prescribed drugs by becoming more tailored to each individual patient. The report further highlights orthopaedics 3D printing and bionics as a key future opportunity, with technological implementation in this area helping to improve the production of protheses, implants, pins and plates. Again, this technology will help enable tailored solutions for patients.

The report said the collecting of data via personalised devices does come with concerns about cybersecurity and privacy and the sector needs to balance the importance of collecting and using the data of its consumers, with the need to protect their privacy and rights. The life sciences sector may be particularly exposed to cybercrime with companies needing to invest in protecting their products from attacks, the report says.

Philip Jennings, UK Head of Life Science at Santander Corporate & Commercial Banking said: "The UK possesses globally recognised expertise across the Life Science sector which attracts high levels of investment. New technologies and techniques are being continually developed to meet the increasing global demand for products and treatments. Santander is well placed to assist companies in developing their Life Science businesses and to help grow their overseas sales."

Francesco Arcangeli, Economist, Make UK, said: "The UK life sciences sector has grown substantially over recent years to become a significant part of UK manufacturing. The focus should be on continuing to increase investment, which the government is planning to do over the next decade, as this will drive R&D and innovation, which is vital for the UK life sciences sector to remain competitive. The sector is in a fantastic position to be able to take advantages of both current and future health trends and we expect to see the sector continue its growth over the next decade."

Research and Development (R&D) is also key to the future success of the sector and the UK government's target is to increase R&D investment from current levels of 1.8% of GDP to 2.4% by 2027. The global market for digital health services such as smart devices and phone apps alone may reach £150 billion in 2020, more than doubling its current value. For the UK, new research centres are set to be developed that will invest heavily in R&D and innovation and create thousands of jobs and leverage millions of private sector investment in R&D.

PLEASE CONTACT OUR MANAGEMENT TEAM WITH ANY FEEDBACK OR NEWS STORY IDEAS:

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