CAMBRIDGE SCIENCE PARK

catalyst

Cambridge Science Park Newsletter Spring 2016

Inside this issue

parklife

Vectura confirms ANDA for Generic Advair Diskus® (VR315) accepted for filing by FDA and milestone payment

Following news earlier in the year announcing completion of a clinical trial for VR315 in the US, Vectura Group plc (LSE: VEC) has recently confirmed that its partner on VR315 US, Hikma Pharmaceuticals PLC (through its wholly owned subsidiary, West-Ward Pharmaceuticals), has confirmed its abbreviated new drug application (ANDA) for fluticasone propionate and salmeterol inhalation powder has been accepted for filing by the US Food and Drug Administration (FDA).

Confirmation that the Clinical Study Report was final in February triggered a cash payment to Vectura of $2 million and this recent acceptance triggered a further cash milestone payment to Vectura of $10 million. VR315 is the generic version of GlaxoSmithKline's Advair Diskus®, which is indicated for the treatment of asthma and the maintenance treatment of airflow obstruction and reducing exacerbations in patients with chronic obstructive pulmonary disease (COPD) and is delivered using Vectura's proprietary dry powder inhaler and formulation technology.

Vectura is eligible to receive a further milestone payment of $11 million upon approval by the FDA. In addition, Vectura will receive a royalty from all sales of VR315 in the US.
www.vectura.com

Vectura's lever-operated dry powder inhaler (© Vectura Group)

Cambridge Consultants works with Smart Drawer on novel retail technology

Cambridge Consultants has helped to develop new intelligent cash drawer technology which can reduce retail fraud and streamline cash counting – at a fraction of the price of existing systems. The new Smart Drawer™ product from UK company Smart Drawer is driven by advanced algorithms developed by Cambridge Consultants.

Intelligent cash drawers can help to combat the problem of retail 'shrinkage', including employee theft, by using load cells which detect money being placed in the various sections of a cash drawer. However, existing solutions can be expensive, bulky and require regular maintenance.

In contrast, the Smart Drawer™ uses just three low-cost load cells to sense the addition or removal of coins – singly or in multiples – and can determine in which section of the drawer coins are deposited. The 'secret ingredient' is the algorithms, which continually analyse the output from the load cells and provide information on the contents of the cash drawer in real time. As well as combating theft and counting mistakes, this can also help avoid having large volumes of cash on the shop floor.
www.cambridgeconsultants.com

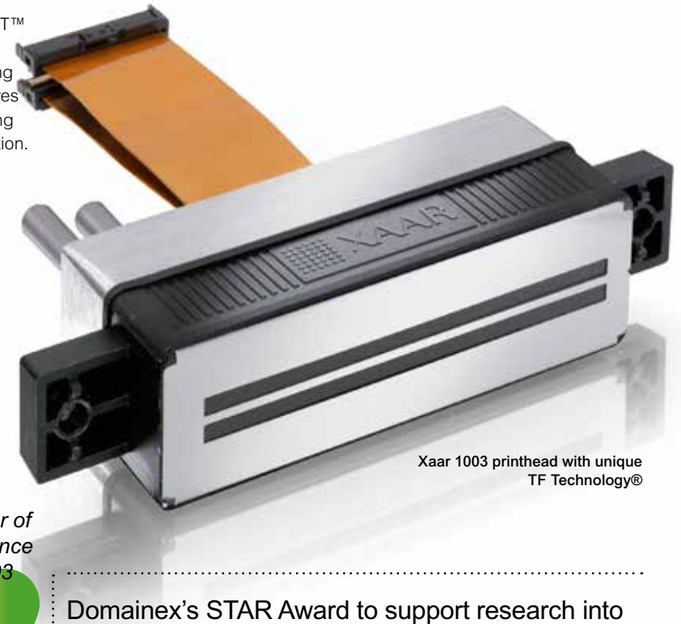
The world-class algorithm and sensing expertise of Cambridge Consultants has helped make our vision of a state-of-the-art, low-cost, counting cash drawer a reality," said Peter Charij, director of Smart Drawer. "We now have a product that offers retailers high counting accuracy, a small size and a fast return on investment.

Xaar launches next-generation printhead technology

Xaar has launched a new range of industrial inkjet printheads for use in applications such as ceramic tile decoration, labelling and direct-to-shape printing. Building on the company's leading position in the market, the Xaar 1003 family of printheads features a range of new technological innovations.

The Xaar 1003 provides a step forward in consistent print quality across the wide print widths used in many single-pass applications, as a result of Xaar's new X-ACT™ Micro Electric Mechanical Systems (MEMS) manufacturing process. The range also features the new XaarGuard™, providing enhanced nozzle plate protection. In November 2015, Xaar was awarded Manufacturing Site of the Year by the National Microelectronics Institute, recognising the company's commitment to continuous improvement.
www.xaar.com

We are delighted to announce the new Xaar 1003 printhead family which is testament to our commitment to ensure our customers remain at the leading edge of single-pass industrial inkjet printing," said Xaar's Director of Marketing, Gillian Ewers. "Alongside improved performance and the maintenance-free production runs, the Xaar 1003 is easy to install and is also backwards -



Xaar 1003 printhead with unique TF Technology®

Abcam founder wins CiteAb's lifetime achievement award

Jonathan Milner, Founder of Abcam, won the lifetime achievement award at the 2016 CiteAb Awards, announced in February. The award, presented by antibody search engine CiteAb, recognises individuals who have made an exceptional contribution to the research antibody industry over a sustained period of time.

Dr Jonathan Milner

Dr Milner founded Abcam, which provides protein research tools to life scientists, in 1998 after becoming frustrated with the lack of high-quality antibodies available to research scientists.

Dr Andrew Chalmers, Founder of CiteAb, said: "Dr Jonathan Milner certainly created a ground-breaking business with Abcam, but has since worked tirelessly investing his own time and funds in taking life science research forward."

Abcam also won CiteAb 2016 awards in the categories for Company succeeding in Stem Cell research and Company succeeding in Neuroscience research.
www.abcam.com

Domainex's STAR Award to support research into treatment for non-Hodgkin lymphomas

iDomainex has announced the latest winner of its Discovery STAR Award as Dr Aude Echalier, Lecturer in Structural Biology of Cancer Related Targets at the University of Leicester. The award gives Dr Echalier access to the drug discovery capabilities of Domainex in support of her research, which aims to target deubiquitinase enzymes (DUBs) leading to a new treatment for diffuse large B-Cell lymphoma (DLBCL).

Domainex will provide Dr Echalier with drug discovery guidance, and access to its LeadBuilder virtual hit screening technology. Following the identification of hits using this approach, Dr Echalier, who has been working with the Leicester Drug Discovery and Diagnostics Centre, will coordinate further testing of these hits. Then, with support from Domainex, she will seek additional funding to develop these towards potential new drug candidates for treatment of this form of non-Hodgkin lymphoma.

Domainex launched its Discovery STAR award in 2013 to support the early stages of drug discovery. At Domainex's discretion, awardees are provided with drug discovery advice and selected services free of charge in order to prepare applicants for funding applications.
www.domainex.com

Science Park Networking Reception

Lucideon, the international materials technology company, is hosting a science networking reception on Thursday 16 June 2016, 5 – 7pm, at The Trinity Centre, Cambridge Science Park. The reception will bring together professionals from scientific organisations, academia and industry, from Cambridge Science Park and further afield. To find out more and/or to register to attend, visit:
www.lucideon.com/networking.

Alternatively, contact Aia Malik, Product Manager, Lucideon:
aia.malik@lucideon.com or +44 (0)1782 764389.

A stellar cast

Ocado warehouse

Growth, goals and people power with Cambridge Consultants

It's official: according to *The Sunday Times* latest top 100 list, Cambridge Consultants is one of the best places in the country to work. Catalyst spoke to CEO Alan Richardson and HR Director Alison Hughes to find out why.

Announced in February, the product design and development firm achieved 38th place in the 2016 list of *The Sunday Times* Best Mid-Sized Companies to Work For, based on employee survey responses. The company also achieved 3-star accreditation for "extraordinary" workplace engagement – up from 2-star in the previous year.

To say the company is proud of its people would be something of an understatement. "550 stars & counting" reads the banner as you walk into the reception at 29 Cambridge Science Park, in reference to the milestone headcount which the company has recently achieved. Breaking the half-thousand employee mark has been the result of a very deliberate strategy, as Alan Richardson explains.

"The years up to when I became CEO in 2012 were obviously the years that followed immediately from the credit crunch," he says. "We had a period when we were doing fine but growing our workforce total quite slowly, probably around 4% or 5% a year. So in 2012, I set the ambition to double the company workforce by the end of 2016, which obviously required a big step up in growth rate. As of the end of 2015, we were about 75% of the way there, so we are roughly on schedule for that.

"We've broken some of the unwritten rules in our game that have been taken for granted for years. People have said that contract product development companies in the Cambridge cluster can't be bigger than 350 people because it's too hard to coordinate, or that you can't recruit more than 50 people a year. Last year we recruited 120 people and as you know we're now 550 in total – so these were artificial limits we now see.

"We work across a number of industries, the biggest of which are medical, wireless, industrial, consumer, energy and defence. But what we do is actually determined very much by what our people are passionate about – then we go out into the world and find clients in those areas and do amazing things for them."

Such passion has indeed led to an incredible array of groundbreaking technologies working for some of the world's leading businesses. In November the company announced that the client for the development of the world's first wireless cardiac pacing system for heart failure had achieved European CE mark approval for the product. The WiSE™ (wireless stimulation endocardially) technology, developed by EBR Systems in collaboration with Cambridge Consultants, helps to treat heart failure through cardiac resynchronisation therapy (CRT), which improves the heart's pumping efficiency by synchronising the left and right ventricles. Conventional CRT devices use wires to deliver pacing pulses to the left ventricle. But these wires can break or otherwise fail – leading to complications in roughly 5-10% of cases.

The WiSE system consists of a tiny electrode implanted in the left ventricle. With every heartbeat, it receives a synchronised ultrasound signal from a small transmitter placed between two ribs. The soundwaves are converted to electrical energy, providing cardiac pacing – without wires and at an optimal, patient-specific location inside the left ventricle.

> *What we do is actually determined very much by what our people are passionate about – then we go out into the world and find clients in those areas and do amazing things for them.*
>
> Alan Richardson, CEO

Continued over

Ocado conveyor belt

It's no small set of goals, because there's no point in small goals.

Alan Richardson, CEO

"This is not just wireless in the normal sense that we understand, that it communicates wirelessly – it's actually powered wirelessly," says Alan. Initial results from a US trial have been extremely positive and the device has even been featured in a recent exhibit at the Science Museum in London.

Cambridge Consultants is equally at home working at the opposite end of the spectrum in terms of scale, as evidenced in its recent work for the world's largest online-only grocery retailer. Ocado needed a wireless solution to support its cutting-edge new warehouse automation platform, which employs robots to store and retrieve crates of goods within its new grocery fulfilment centres.

The result is a breakthrough in radio design – the most densely packed mobile network in the world. The 4G telecoms technology is enabling Ocado to control 1,000 robots from a single base station, communicating with them ten times a second – all within an area the size of an Olympic swimming pool. It's also scalable – so could potentially handle 20 times the number of movements. And because it works in licence-exempt spectrum like Wi-Fi, it can be deployed quickly anywhere in the world.

"This is a wireless control system that is ten times the density of any mobile telephony network in the world, so the kind of efficiency and scale this unlocks for Ocado is transformative," says Alan. "That's really what our work is all about – using technology to help our clients make the kind of developments that mean they can advance in their markets in big steps, not just small ones."

HR Director Alison Hughes has been with the company more than 30 years and understands the culture that attracts some of the best in the world to come and work there. "*The Sunday Times* list is further evidence that we are an extraordinary company in the way that we look after our staff – the value we place on them is outstanding," she says. "We're really about helping people to climb as high as they can – and sometimes that means catching them if they fall. It's an extraordinary set of people; I'm completely in awe of the things that they do. Yesterday one of our senior consultants stopped me in the corridor with a piece of paper saying 'This is a world first and it's going out today'. You just don't find that kind of environment in many places. Our product is our people because that's what we do best."

Close to the first milestone of doubling in size as compared to 2012, an ambitious new vision has been unveiled to double in size again by 2020. This includes growing the company's existing presence in Boston and Asia, as well as establishing Cambridge Consultants on the West Coast of the US. Here on Cambridge Science Park, major refurbishments and a 40,000ft^2 new building have been completed, while plans for a new 40,000ft^2 facility have just been submitted. "Cambridge Science Park is pretty much the first significant place of its kind and it's unique," adds Alan. "I think it's the most sought-after address in Cambridge in the hi-tech sector. We certainly wouldn't want to be anywhere else."

But bricks and mortar are, clearly, just the setting for what matters most. "I think the best thing about being at Cambridge Consultants is the incredible set of people we have," he says. "So we have experts in virtually anything and that means that we can put a team together to do something as different from a wireless pacemaker that's never been done before, which is pretty much the size of your thumbnail, to a warehouse automation system which is pretty much the size of Wembley Stadium. So we can do an incredible range of things.

"Our vision is that we want to be the best provider of innovative product development. We want to be the best provider because then we will have the best clients, do the best projects, have the best staff and therefore have the best brand. So it's no small set of goals, because there's no point in small goals."

www.cambridgeconsultants.com

Alan Richardson, CEO, and Alison Hughes, HR Director

A twist in the tale

DNA amplification reconfigured with TwistDx

TwistDx has developed revolutionary technology that allows scientists to amplify DNA in as little as five to ten minutes. Catalyst spoke to CEO and co-founder Dr Niall Armes to find out more.

The technology for gene amplification is at the heart of much of what we now take for granted in DNA science. The ability to multiply even a single fragment of DNA into millions of the same strands has made the detection and diagnosis of hereditary and infectious diseases a highly accurate process. It has enabled DNA fingerprinting, as used in forensic science and parentage testing, as well as for DNA cloning which is itself used for research and therapeutic purposes

For more than three decades, the most common method used to amplify genes in medical or biological research settings has been polymerase chain reaction (PCR). This highly effective process has been adopted in labs throughout the world; its inventor, Kary Mulis, was awarded the Nobel Prize for Chemistry in 1993.

The PCR process involves rapidly heating and cooling the sample multiple times per test – a cycle that usually takes an hour or more to complete. In Cambridge, TwistDx has developed a new approach – recombinase polymerase amplification (RPA) – that dramatically shortens the time to get results, and makes instrumentation simpler. It is a game-changer: a technology which the company describes as "the first viable alternative to PCR in more than 30 years".

Continued over

What motivates me is seeing our technology really on the cusp of making a difference to people's lives out there.

Dr Niall Armes, CEO, TwistDx

Dr Niall Armes, CEO of TwistDx, provides some insight into the key elements of both technologies. “To achieve gene amplification, PCR requires a process in which temperatures change from near boiling to much lower temperatures in a set of successive cycles,” he says. “These cycles may take place between 30 and 40 times, using an instrument called a thermocycler.

“Our technology works at a single relatively low temperature, optimally about human body temperature. So with RPA, you don’t need a thermocycler. There are lots of advantages with this. One of them is speed. Using the PCR method, mainly due to the need to change temperatures, the process will typically take no less than 30 minutes and typically up to as much as 90 minutes depending on the target and a few other factors. With our technology, because you don’t need changes in temperature, we’ve reduced this time to just 5 to 10 minutes with small targets. RPA can achieve doubling times of about 10 to 12 seconds with small amplicons. That gives you a huge time advantage with a low instrument complexity.”

Although it is fast, RPA still retains the sensitivity that older methods have offered. “Our technology has the capability to detect single molecules of DNA,” says Niall. “That is also possible with PCR, but it’s not necessarily true for some other technologies in the area. So we maintain the performance level that is delivered with the PCR method.”

“We’re not the only technology that can amplify DNA without using the thermocycler approach,” he adds. “But none other than ours really replicates very closely what you can do with the PCR method over such a broad range of applications.”

The wide applicability of the RPA technology is in part down to one of its other key attributes: simplicity. Not only is there no need for thermocycling, it is a process that can work in almost any environment due to broad temperature tolerance, as Niall goes on to explain.

“With RPA, the requirements for instrumentation in order to maintain the reaction are very simple. In fact, you could put a tube of our reagents under your arm at body temperature and it will carry out the amplification process. That means the kind of instrument circumstances in which you deploy the technology are very broad.

“For example, you can bring molecular testing to doctors’ surgeries or even pharmacies much more readily, and obtain on-the-spot results. That reduces the necessity to send samples off to central testing facilities. That saves money and time – meaning you can treat the patient more quickly.”

As with many groundbreaking technologies, the development of RPA was somewhat of a sideways step from an initial idea. The TwistDx story begins back in 1999, when Niall started the company alongside co-founders Dr Derek Stemple and Dr Nagesh Mahanthappa. With an initial focus on DNA sequencing, it was as they first began to seek finance that ideas related to isothermal DNA amplification were added to the table.

In 2002, half a million dollars of funding was secured from a US-based charitable organisation, which led to the formal incorporation of the company in Boston, Massachusetts – two of the co-founders being US citizens. Early concept work began in the UK and within a year the team had data which supported the feasibility of their gene amplification method.

Later, in 2010, the company was acquired by Alere, a global point-of-care diagnostic device and service provider. The synergy was obvious, as Niall explains. “Alere has a product called the Alere™ i, which is a portable molecular testing system. We’re one of two isothermal chemistries that exist within Alere, and both of these are being deployed on the Alere™ i system. This is the first system that can provide lab-accurate results in settings such as doctors’ surgeries or pharmacies.

> *“You could put a tube of our reagents under your arm at body temperature and it will carry out the amplification process.”*
>
> Dr Niall Armes, CEO

“We’re also involved in a programme to develop an even more portable device in association with a grant from BARDA [the Biomedical Advanced Research and Development Authority], which is a US governmental funding agency for emergency preparedness. The programme is looking to develop a second-generation platform for infectious disease testing using the RPA isothermal chemistry. So we are actually engaged in many activities related to making the technology available and its potential application within different hardware platforms.”

The latest stage in the TwistDx story was the announcement in February that the global healthcare company Abbott Laboratories intends to acquire Alere later in 2016. “We see this as a very positive outcome,” says Niall. “Abbott obviously has enormous reach, and the potential to accelerate growth we believe. We have good reason to believe they have a particular interest in growing their molecular part of the business.”

The future looks bright as TwistDx continues its groundbreaking work, potentially within a new context. Reasons for optimism? Simple, explains Niall. “It’s exciting because the technology works so fantastically well. In fact, one of our challenges is to overcome perceptions related to the word ‘isothermal’. Other isothermal platforms have been developed elsewhere and in our understanding they’ve been found to be somewhat of a let-down or rather restricted in their use. So within the broader community, there may be a view that when you use the word ‘isothermal’, people are not convinced. Whereas our technology is actually very, very different. It’s very easily used and covers much of the space of PCR. That’s why our tagline is ‘It really works’.”

“From our point of view, we want to see full utilisation of the RPA technology, making a difference in a lot of different settings. Because these technologies have the real possibility to innovate all sorts of products and diagnostic applications which bring real value across all these areas. So that is really what we want to see – broad uptake.”

From a personal point of view, Niall is as enthusiastic as he ever was about coming in to work at TwistDx. “What motivates me is seeing our technology really on the cusp of making a difference to people’s lives out there. And I’m still a scientist at heart. As the CEO of this local entity, there are obviously a lot of administrative duties. But I remember working at our lab bench when we first did the experiments that brought us here today. So still, every time someone brings me a piece of data, that’s one of the most exciting parts of my day.”

www.twistdx.co.uk

Scientist in the lab at TwistDx

John Bradfield Centre, designed by architects Aukett Swanke, completion 2017

Flexible working and networking options

The new John Bradfield Centre is a joint venture between Central Working and Trinity College, and is designed to grow business. The aim is to provide a nurturing commercial environment for translating science into successful companies, and for turning scientists into successful entrepreneurs.

Businesses will have the option of having their own permanent office, working at a permanent desk in the collaborative workspace, or using the facility on a more flexible basis. Members will also be welcome at any of Central Working's facilities in London, Manchester and further afield, where they can meet, share and collaborate as part of the Central Working network.

Central Working staff will go out of their way to facilitate relevant business connections across their member-businesses, providing useful contacts and stimulating business growth.

If you would like to find out how your company could benefit, please email hi@centralworking.com

Building the future

Work begins on John Bradfield Centre

Construction is now under way on the £20 million technology centre at Cambridge Science Park, an innovative collaboration between Trinity College, the Department for Business, Innovation & Skills and Central Working.

In the John Bradfield Centre we aim to provide a nurturing, commercial environment for translating science into successful companies.

Sir Gregory Winter
Master of Trinity College

Ground breaking ceremony for the new John Bradfield Centre

The state-of-the-art John Bradfield Centre will nurture scalable, high-growth businesses in Cambridge to create a community of over 500 innovators. Central Working, the collaborative workspace provider, will manage the three-storey, 40,000 sq. ft. building to galvanise Cambridge's booming tech sector, which historically has been driven by collaboration with the University and surrounding businesses.

The John Bradfield Centre, which will open in 2017, will provide vital support to entrepreneurs and businesses alike.

It was the vision and the energy of Sir John Bradfield, former Senior Bursar of Trinity College, that created Cambridge Science Park, and so it is right he is remembered in the next phase of the Park's development.

It is important to pay more attention to the earliest phase of company development. Many science start-up companies have their roots in academic departments in Cambridge and there has always been space for small companies on the Science Park, but in the John Bradfield Centre the intention is to offer more than space.

There are limits to the support and space that academic departments can give to spinning out ideas and technologies for commercial application.

To this aim, Trinity College are collaborating with experienced partners, Jon Bradford and Central Working, and are also exploring how best to engage the University, students, Fellows and alumni in the enterprise.

James Layfield, Central Working CEO, said: "We're delighted to partner with Trinity College on this state-of-the-art business growth hub. By combining Central Working's expertise with the direction of Jon Bradford, who launched the renowned Techstar's London programme, we will provide the ideal nurturing environment for Cambridge's innovative entrepreneurs and stand a real chance of uncovering the UK's next Unicorn business."

This new centre builds on Trinity College's great history of scientific discovery and will help to create new jobs locally.

Jo Johnson, Minister for Universities and Science

With the new train station linking to King's Cross and beyond, the John Bradfield Centre is set to become a focal point for even more entrepreneurial activity. Interest has already been received from entrepreneurs and investors, including Trinity alumni.

Announced by the Prime Minister in February 2015, this forms part of the Government's support for the East of England, building on the world-class science and technology base of Cambridge, and reflects its commitment to science investment in the UK, with science spending protected to 2020.

Bidwells is project-managing the development on behalf of Trinity College, and working with the Greater Cambridge Greater Peterborough Enterprise Partnership. SDC Builders Ltd from Bedford have been appointed to construct this prestigious facility.

With £4.8 million from the Department for Business, Innovation & Skills, and co-funding from Trinity College which more than doubles this investment, the John Bradfield Centre will continue the astute and pioneering work of its namesake.

The talent game

Placing people at the heart of science with SRG

How do you recruit the best scientific talent to your company? Catalyst spoke to recruitment specialists SRG to find out.

"In the science sector here in Cambridge, it's clearly a candidate-driven market at the moment," says Keith Mulgrew, Senior Consultant at the Cambridge office for SRG. "So in terms of what companies can do to attract talent, certainly to start off with, they need to be ultra-competitive with regard to financial incentives.

"That's not just with regard - to salaries, that means additional incentives as well – bonuses, flexible working, things that can engage with a particular person that a company may be looking to bring on. We're hearing about companies offering flexible bonus and incentive packages whereby employees can invest in the areas of a bonus package that are of particular importance to them. These are the kinds of innovative approaches that can make a difference in today's recruitment market."

This understanding is based on solid experience. SRG is a recruitment company specialising for more than 25 years in the science, engineering, clinical and outsourcing sectors. The Cambridge office is one of ten across the country, and SRG is part of Impellam Group, the second largest recruitment company in the UK.

In conjunction with *New Scientist*, SRG has just published its 2016 Salary Survey based on over 4,000 responses from its global database and the journal's readership. It describes the survey as "the industry's most comprehensive benchmarking tool for both employers and employees to assess salaries in relation to their industry peers".

"The survey is a really useful tool which companies can access by registering at our site," says Keith. "At the moment I'm going out there and discussing the findings with my clients and it's leading to some really interesting conversations."

SRG believes it is uniquely equipped to meet the diverse needs of clients and candidates because it has first-hand experience – the company only employs recruiters with a background in science. "All of us have a scientific background so I think we have a technical knowledge which sets us apart from our competitors – we're very selective about the people we bring on board," says Keith.

> *Here in Cambridge, one of the main things I think we can offer to both clients and candidates is real local knowledge.*
>
> Keith Mulgrew, Senior Consultant, SRG

Keith Mulgrew, Senior Consultant, SRG

"When we speak to hiring managers, when we talk to candidates and we're talking about specialist skill sets, we know what we're talking about. And that's critical to getting the candidate right both on a technical and a personal basis.

"I think equally importantly, we all have a passion and a genuine interest in the fields we're working in. We employ engaging people who want to build relationships and really understand their sector. Personally, I'm focused on the biotech and pharmaceutical sectors and I work quite a lot within antibody therapeutics. So I've got a really good understanding of the kinds of roles within these areas but I'm always looking to increase my knowledge – when I meet a client, I really like to drill down into what they're looking for."

In the hi-tech sector, as the Salary Survey confirms, the competition for top talent is higher than ever. Russell Beck, who is Head of Consulting at SRG's parent company Impellam Group, suggests that companies need to evolve new strategies in order to win over the best people.

"It's a candidate-led market, the candidates have choices," he says. "Across the job market as a whole, 42% of offers are currently rejected. Why? The candidates have got other job opportunities. So the next question is actually the really important one: how can employers differentiate themselves?

"Let's think about the recruitment process. If you've applied for a job, you might have a 20-minute telephone screening to take you to the next stage, then you might have a first interview for an hour and a final interview for an hour. In 2 hours 20 minutes you've got to decide where you're going to spend a large part of your week. It's actually a very short amount of time in which to decide. So for companies who want to recruit talent, the way they present themselves in this time is make or break.

"The whole process, the whole way you engage with candidates, the way you manage them, the experience you give to them – every single touchpoint is unbelievably critical. It could be as simple as, did the hiring manager turn up on time for the interview? Were you offered a glass of water? How did they make you feel when you applied? The whole process needs to be really carefully managed."

Of course, recruiting is only the beginning of the process, as Russell goes on to explain. "If you ask employees who are thinking about leaving their companies why they want to do so, the number one reason is not salary," he says. "It's because employees don't feel valued. It's because they feel they would be more loved, more valued, more appreciated elsewhere. They want to feel that work is something that connects with them and their vision. That's why we run seminars on employee engagement and explore the business case for it – how can you drive it? How does it impact bottom line?"

> *The whole process, the whole way you engage with candidates, the way you manage them, the experience you give to them – every single touchpoint is unbelievably critical.*
>
> Russell Beck, Head of Consulting, Impellam Group

In this demanding context, SRG is helping clients and candidates develop mutually rewarding and lasting relationships. "A lot of people have a rather blinkered idea of the recruitment industry," says Keith. "They think it's all about just filling individual positions and moving on to the next one. At SRG, we take a much broader approach. I know what employees and employers are looking for because I'm having conversations with both sides every day .With candidates we work to build lifelong partnerships with them throughout their career – as a new graduate right through to a senior scientist and beyond. We also look to support different kinds of work in different ways; for example, we've just launched our STAR initiative, which is a benefits package for temporary workers.

"For our clients, we offer consultative advice on a range of topics such as salary advice, market trends, employee engagement and how to manage multi-generation workforces. And we offer different levels of service – we can provide a headhunter service for a particular role if appropriate.

"Here in Cambridge, one of the main things I think we can offer to both clients and candidates is real local knowledge. We work with all the kinds of companies that are based in and around the area, from small start-ups through to multinationals. We know about the housing market, the transport issues, the things that make this a great place to live and work and the things that make it more challenging."

It looks like business for SRG is not likely to slow down any time soon. "Looking into the future of work, hubs are going to be increasingly important," says Russell. "It doesn't matter whether it's a biotech hub or silicon roundabout, if you're in that industry and you want to be attracting the talent, you've got to be in that hub otherwise you're on a hiding to nothing. So for hi-tech companies already here in Cambridge, they're very well placed to find the best talent."

www.srg.co.uk

parklife connections

Cambridge AWiSE
(Association for Women in Science & Engineering) is a multidisciplinary membership networking organisation composed of individuals from institutions, businesses, associations and other organisations all of whom share the common goal of advancing the interests of women in science, engineering, technology, maths and medicine. Cambridge AWiSE holds regular meetings and events; for details see the website or get in touch.
web: www.camawise.org.uk
email: info@camawise.org.uk
twitter: @camawise
linkedin: http://www.linkedin.com/groups?gid=43043

Cambridge Enterprise
exists to help University of Cambridge inventors, innovators and entrepreneurs make their ideas and concepts more commercially successful for the benefit of society, the UK economy, the inventors and the University.
web: www.enterprise.cam.ac.uk
email: enquiries@enterprise.cam.ac.uk

Cambridge Network
is a membership organisation. We bring people together – from business and academia – to meet each other and share ideas, encouraging collaboration and partnership for shared success. With over 1,200 corporate members, including start-ups, SMEs and global corporations, Cambridge Network represents the majority of the technology businesses in Cambridge.
web: www.cambridgenetwork.co.uk
email: Claire.Ruskin@cambridgenetwork.co.uk
tel: 01223 300148

Cambridge University Technology and Enterprise Club (CUTEC)
is the leading student-run technology and entrepreneurship society at Cambridge University. Supported by advisors in the local business community, we nurture and enhance the entrepreneurial spirit amongst academics and students and host an annual Technology Ventures Conference that brings together over 300 students, researchers and professionals. Founded in 2003, CUTEC now boasts 4,000+ members worldwide.
web: www.cutec.org
email: info@cutec.org
twitter: @CUTEC

Chase
(formerly the Cambridge Hi-Tech Association of Small Enterprises) is a lively networking group for entrepreneurs, start-ups, small firms and people interested in business and hi-tech, based in Cambridge.
web: www.chase.org.uk

One Nucleus
is the largest membership organisation for life science and healthcare companies in Europe. A not-for-profit company with more than 470 member organisations across the world (mainly Cambridge and London based), its mission is to maximise the global competitiveness of its members. Its core activities include networking events (from eight to 800 delegates), training, a Group Purchasing Consortium which saves its members £4 million per annum, special interest groups and an international strategy.
web: www.onenucleus.com
email: info@onenucleus.com

Science Technology Network (stn)
is an online database service that provides global access to an integrated network of the most important and comprehensive chemistry, sci-tech and patent databases from the world's most respected producers.
web: www.stn-international.com

CAMBRIDGE SCIENCE PARK

The Cambridge Science Park
is managed by Bidwells on behalf of Trinity College.
Cambridge Science Park tenants can post news, events and jobs free on
www.cambridgesciencepark.co.uk
Twitter: @CamSciencePark
Facebook: Cambridge Science Park
LinkedIn: Cambridge Science Park

Management
Jeremy Tuck
Jeremy.tuck@bidwells.co.uk
Tel: 01223 559333

PR & Marketing
Julie Bushell
Julie.Bushell@bidwells.co.uk
Tel: 01223 559331

Catalyst is designed by Simpsons Creative

Companies based on Cambridge Science Park

Abcam plc 300/200/204
Agenus UK Ltd 315
Amgen Ltd 240
Arecor 2
Arthur D Little Ltd 18
Astex Therapeutics Ltd 436
AstraZeneca 310
Aveillant 29
Bayer CropScience Ltd 230
Beko plc 12
Bright Horizons 319
British American Tobacco 210
Broadcom 406
Cambridge Assessment 332
Cambridge Business Travel 325
Cambridge Consultants Ltd 163
Cambridge Electronic Design Ltd 4
Cantab Biopharmaceuticals Ltd 155
Citrix Systems UK Ltd 101
Cryptomathic Ltd 327
Dassault Systems Biovia 334
Display Link 140
Domainex 162
Dr Reddy's Chirotech Technology 410
Eight19 9a
Ember Europe Ltd 300
Esaote 14
Espial Ltd 406
Flexenable 31-35
Frontier Developments Ltd 306/321/323
GHX 326
Grant Thornton 101
Hawkins & Associates Ltd 120-126
Heraeus Noblelight Ltd 161/163
Huawei Technologies 302
Jagex 220
John Bradfield Centre 184 (proposed site)
Johnson Matthey Catalysts 28/260
Linguamatics 324
Modern Water Monitoring 15-17
Mundipharma Research Ltd 194-198
Napp Pharmaceutical Holdings Ltd 196
Owlstone Ltd 9B/127
Philips Research 101
Polatis Ltd 332
Qualcomm 400
Ricardo UK Ltd 400
Roku Europe Ltd 205
Royal Society of Chemistry 290
Sigma Aldrich 328/329
Spiral Software 101
SRG 11
Takeda Cambridge Ltd 418/430
The Innovation Centre 23
The Trinity Centre 24
The Trinity Health Club 24
Toshiba Research Europe Ltd 208
Twist DX 181
Vectura Delivery Devices Ltd 21
WorldPay Ltd 270
Xaar plc 316

Innovation Centre, unit 23,
home to over 30 companies;
for a full list of occupants go to
www.cambridgesciencepark.co.uk

According to a recent study, scientific output doubles roughly every nine years.*


© Royal Society of Chemistry / Stephen Lake

Frank Gibson, Director of Technology, Royal Society of Chemistry

Viewpoint

Last month, researchers at Johns Hopkins University in the US announced they had created a "map" that can predict the safety of untested chemicals, using data collected by the European Chemicals Agency (ECHA).

That's a huge step forward, potentially reducing the need for animal testing and saving hundreds of millions of pounds in drug development costs.

Unfortunately, the ECHA says it has exclusive rights to the information and the Hopkins team didn't get permission to duplicate it. As a result, the researchers haven't yet been able to make the database public.

Computational models are transforming the possibilities for generating, analysing and using data. Previously, scientists used computer models to test hypotheses. Now, researchers like those at Johns Hopkins can use computer models to spot patterns and make accurate predictions, without understanding the underpinning theory.

If we are to make the most of these techniques, we need better protocols and mechanisms for sharing information. As a not-for-profit organisation, with strong links across the global chemical community, the Royal Society of Chemistry supports this in the chemical sciences.

Our ChemSpider database integrates and links information about 44 million chemical compounds from more than 500 data sources, giving researchers the most comprehensive view of freely available chemical data from a single online search.

In 2014, we brought pharmaceutical and agrochemical companies together with university researchers to virtually screen 75,000 compounds "lost" in PhD theses. 65% appeared novel compared against public databases and 95% have been added to ChemSpider.

One of our biggest challenges is as a publisher of scientific research. When I started my career, the focus was still on supporting printed journal articles. Gradually, publishers evolved to creating a website, through to thinking of the article as principally a digital product. Now we are undergoing a much more fundamental shift, with the Open Access movement and the drive to make research freely available and reproducible.

Readers are no longer satisfied with a PDF of an article. They want to easily access and use the relevant research objects – from related research, to the source dataset and the algorithms used. This challenge is compounded by the sheer volume of research and data being produced.

Last year we published nearly 45,000 journal articles – making us the biggest publisher of quality chemical science research in the world – and our papers were downloaded over 37.5 million times.

At the same time, we're experiencing a big rise in the amount of supplementary information being submitted by authors. As the volume of raw data we handle increases, I believe publishers will need to add value, for example by using computational models to collate and analyse data across articles.

All of this means that scientific publishers need to become like technology companies. We need people with first-class technological and information management skills, from data scientists and database administrators through to developers.

We are reaching an inflection point in the amount of scientific information being produced. According to a recent study*, scientific output doubles roughly every nine years. But, as the experiences of the Johns Hopkins researchers show, we have not yet developed a coordinated way of sharing and managing this huge volume of scientific data.

Scientific organisations need to invest in technology, and to work with each other and policymakers to develop a more consistent and coordinated approach. A great advantage of being based in the Cambridge Science Park is that we are close both to leading academic researchers and to a thriving community of innovative companies.

We're always keen to share ideas, whether about the technical challenges of supporting a global organisation, or developments in data science and information management. If you would like to find out more about what we do, and how we use technology, please get in touch.

In some ways, the challenge is not new. The ability to share knowledge has always been at the heart of scientific endeavour. What has changed is the sheer volume of that knowledge, and our ability to analyse it.

To paraphrase Isaac Newton, we see further by standing on the shoulders of giants. What he couldn't have predicted is just how fast those giants are growing today.

* "Growth rates of modern science: A bibliometric analysis based on the number of publications and cited references", Lutz Bornmann, Ruediger Mutz, Journal of the Association for Information Science & Technology, 2015, vol. 66, issue 11, pages 2215-2222

Frank Gibson is Director of Technology at the Royal Society of Chemistry, the world's leading chemistry community. He became interested in scientific information management as a genetics undergraduate at the University of Glasgow, leading to a PhD in Bioinformatics at the University of Newcastle, and to senior technology positions with a range of organisations, including the Royal Pharmaceutical Society.

The ability to share knowledge has always been at the heart of scientific endeavour.