

ON Highlights

News highlights from One Nucleus and our members

Autumn 2017

A Warm Welcome

It seems timely to be writing my first ON Highlights introduction as we move through Autumn. Autumn is a season where we have come to expect some disruption from the weather, the changing faces of the trees as the leaves fall, and we begin to look ahead to what's next as the festive season beckons and dreams for the year ahead are made. The winds of this past few months feel much like that described by the Scorpions nearly two decades ago; 'Wind Of Change'.

Technology is changing faster than ever before, creating huge opportunities to advance our understanding of health disorders at an incredibly detailed level. Applying these new understandings to increase the efficiency of developing new therapeutic, diagnostic and prophylactic interventions to improve patient outcomes represents a golden opportunity as well as many challenges. Changes in the political, regulatory and business landscape within which the sector

is operating continue to be uncertain at best, creating additional challenges for our members. Yet, it is always amazing how much great progress is being made across these areas and I am delighted so many are featured in this edition of ON Highlights which focuses on examples of our members scaling up their business and entering or expanding in new markets.

You may have noticed that there has been a significant change here at One Nucleus too, and I am delighted to have taken on the role of CEO during this exciting time. In setting the scene for this publication, I felt it was timely to give you a flavour of how I see One Nucleus developing as we look ahead.

Our aim is to support our members in maximising their performance and achieving sustained success. In this way we will fulfil our mission that is 'To enable our members to be globally competitive'. Not that every member seeks to be operating



One Nucleus' new CEO, Tony Jones

globally, but a mission that reflects our belief that our members are either already, or have the potential to be the best in the world at what they do. Supporting our members in their respective mission, irrespective of the stage, model or size of their business is our raison d'être.

The One Nucleus focus is centred on those doing business in, with or from the Greater London-Cambridge-East of England corridor, recognising that not everyone active in the cluster is

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physically based there. Connecting potential investors, partners, clients and providers both inside and from outside of the cluster are a key element to supporting our members in seeing and harnessing the best opportunities. Connectivity is a people-driven process, hence our current activities, many of which are detailed later, will evolve with this in mind.

As mentioned, the network we are custodians of at One Nucleus includes world leading expertise across the sector. Connecting our members to that talent pool in order

members, such as California (BIOCOM) and Massachusetts (MassBio and MassMEDIC) as well as collaborations closer to home in Europe (BioM, Biocat and FlandersBio) and in Asia (LINK-J and Government of South Australia) and others too numerous to mention here are excellent vehicles. Such connectivity has raised awareness of our members globally. In return, of course, our members are made aware of opportunities and support in these other territories as they grow their companies. This was reinforced just this month with the signing of the updated MoU

the key people and stimulate debate and learning. Please see the review of ON Helix 2017 in this issue, again reflecting the breadth of expertise that assembles at the events. Look out too for some changes due to be announced soon!

Whilst you peruse the exciting news from members in the following pages, I will leave you with a couple of my favourite quotes that drive me personally in many decisions:

'Coming together is a beginning; keeping together is progress; working together is success,'

Henry Ford

'Doing what you like is freedom. Liking what you do is happiness,'

Frank Tyger

My aim is for One Nucleus to be pivotal in affecting change that will improve the lives of patients and drive success for our sector at the company and individual level for those involved in any way. We are centric on a world leading location in which to drive that success for the sector. Any change needs to be sustainable, so akin to Lynne Franks' 'Me, We, Us' approach, I see us together building: (i) a One Nucleus based on being authentic, innovative and passionate about the sector; (ii) a wider family of members who are equally innovative and passionate in their goals; (iii) and finally, the wider web of collaborators, partners and supporters, many from other sectors and who we don't as yet know, all seeking better outcomes.

I am looking forward to the journey ahead and would welcome your company on the trip!



'One Nucleus has expended significant energy and resource over the years developing a strong web of connections across the UK and internationally'

to share knowledge, contacts and resources as appropriate, will enable leadership regionally, nationally and for the sector globally going forward. To this end, a series of 'Advisory Boards' will be created to inform One Nucleus activities, provide advice to those seeking expert input and to formulate best practice approaches for dissemination to the wider network. Many topics for such groups have been proposed by members already and the list should not be finite or static where key areas of challenge arise or fade for our members. Initial plans are to align the groups with areas of One Nucleus, so in areas such as Purchasing, Learning & Development, Investment, Partnering, Start-Up, Clinical Development and R&D space. From the strategic to the operational, these are all areas in which companies face challenges and areas in which this region has rich experience to share.

One Nucleus has expended significant energy and resource over the years developing a strong web of connections across the UK and internationally. Memorandums of understanding (MoUs) with key clusters of interest to our

with BIOCOM during its London visit. The UK-based collaborations are absolutely no less important. Collaborating with our peer groups such as Bionow, MediWales, MediLinks and OBN, as well as the national bodies such as Biopartner, BIA, ABPI and ABHI enables us to serve our sector best in my view. There is plenty to do and One Nucleus shouldn't think it is a solo exercise. Many hands make light work if we all bring our best attributes to the collective table.

Events are core to connecting with our members and collaborators of course. The end of the year will again see our largest annual event, Genesis take place in London for over 800 attendees with sessions covering finance, deal-making, digital health, innovation in development and med tech. Bringing all these aspects together for the day, reflecting the evolving landscape everyone is facing in the converging healthcare research, investment and provision field. Our BioWednesdays (both London and Cambridge), the Leadership Series and our annual Cambridge conference, ON Helix, provide further opportunities to assemble

Sherry Coutu – Serial Entrepreneur and Angel Investor

Sherry Coutu



Sherry Coutu CBE is arguably one of the world's most influential and best-networked people in technology and investing. Originally from Canada, she now calls Cambridge her home. We hear from Sherry on the importance of scale-ups in Britain's economy and how One Nucleus members can help the organisation she founded, Founders4Schools, build connections between employers and young people to increase youth employability and close the skills gap.

You describe yourself as 'Mother, Entrepreneur, Investor & Advisor' – please tell us more

I am a serial entrepreneur and angel investor who serves on the boards of companies, charities and universities. I chair Founders4Schools and am a non-executive member of Cambridge University (Finance Board), Cambridge Assessment, Cambridge University Press and a non-executive director of Zoopla, Raspberry Pi and the London Stock Exchange Group.

Despite neither of my parents attending university and growing up in a lumber town in Canada, encouragement from my teachers

while I was in school put me on a path that now allows me to have invested in more than 60 start-ups as an angel investor and to philanthropically support the Prince's Trust, the Crick Institute and serve on the Harvard Business School European Advisory Council.

My parents couldn't afford to send me to university, so scholarships and financial aid enabled me to obtain an MBA from Harvard, an MSc (with distinction) from the London School of Economics, and a BA (Hons with distinction) from the University of British Columbia, Canada.

As author of the 'Scale-Up Report', you urged Government to support scale-ups and not only start-ups. Since then, as co-founder and chair of the Scale-up Institute you've set out to make Britain the number one destination for businesses to grow and scale. How's this vision taking shape?

We have been hugely encouraged by the progress that has been made over the past three years, particularly with business, educators and universities. On the Government side, we have collaborated with policy makers,

corporate partners and educational establishments to take our recommendations forward and to track the targets that we set out. We believe that our concerted efforts are making a real impact.

We have appointed Scale-up Ambassadors throughout the country - all of whom help take the scale-up message to their own networks, and help to spread the message to others about why there needs to be special fast-track policies for scale-ups in large corporate procurement and government procurement and visa issuance.

I am encouraged by the way in which our private sector and local areas across the country are becoming more focused on scaling businesses and developing bespoke programmes for them such as the new Leadership Academy in the North East; the peer to peer network of InspireElite in Swindon and School for Scale-Ups in Cambridge.

Many of our recommendations in the 2014 Scale-Up Report and 2016 Review have been woven into the Government's Industrial Strategy. Most notably, this includes the appointment of the Rt Hon Margot James, Minister for Small Business, as a cross-Government Scale-Up Champion to lead the public and private sector Scale-Up Taskforce. This is a very strong signal that making the UK a good place to grow a business, as well as to start one, is firmly on the Government's agenda. Having said that, there is still an enormous task ahead of us if we are to close the scale-up gap and associated productivity gap that goes hand in hand with not supporting a business to grow after its creation.

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Founders4Schools is an organisation you are closely involved with – what was it set up to do and can you give us an insight into some current projects?

Today there are one million job vacancies in the UK which employers are unable to fill, largely due to a lack in skills among the workforce.

When my children were teenagers, I became aware of this issue and decided to do something about it. So I stopped being an active angel investor (50+investments) and in collaboration with students, schools and the start-up / scale-up business community, I set up Founders4Schools to build connections between employers and pupils to increase youth employability and close the skills gap. In addition to what I could see happening with my own children, I was inspired by the research of Professor Anthony Mann from the Education and Employers Taskforce which showed that students are 86% less likely to become NEET (Not in Education, Employment or Training) following four employer encounters. And teachers tell us that our encounters triple the likelihood that the young person will choose to study a STEM subject. It also makes me angry - really angry - that those from backgrounds like I have are far less likely to succeed in school or have the opportunity to meet business leaders.

Founders4Schools enables educators to invite business leaders from fast growing local life science companies into their classrooms to inspire students through a range of impactful events including role model talks, careers fairs, group mentoring, mock interviews and workplace visits. By hearing the real life stories of successful business people, young people are inspired to consider careers in sectors crucial to economic growth in the UK. I'm delighted that we have facilitated 190,000 student-employer encounters across the UK

so far which we know has changed the lives of at least 80,000 young people.

To give you an idea of how we operate, we use artificial intelligence (AI) to learn about the encounters that educators have created and use this data to recommend the highest impact encounter type to request we help them with next. Our algorithms recommend business leaders from the fastest growing industries near an educator's school. It's exciting stuff! But we need a lot more from the life sciences industry - as you will know this is one of the best pathways for students to consider - yet many of the life science companies that are

to our society and damaging to our economic prospects, preventing scaling life science companies from discovering the best talent to accelerate their growth and preventing our young people from reaching their potential.

We are levelling the playing field with a service we've been developing for the past two years and thinking about for the past three years. This is called Workfinder which is launching now for businesses and in time for 2018 placements for students. We put the young person at the centre of the process. In just a few taps of a mobile device, everyone can search and apply for placements at high

'I am encouraged by the way in which our private sector and local areas across the country are becoming more focused on scaling businesses and developing bespoke programmes for them'

growing fast are 'under the radar' of educators and parents and indeed, their local community. But not so once they've signed up with us, so please do that now! <https://www.founders4schools.org.uk/leaders/signup/>

We especially have an acute shortage of female volunteers with a STEM background - so please help if you can - we specialise in what are called 'micro-volunteering' requests that take no more than one hour of your time to speak to students in local schools.

We've been asked since inception to help provide a solution for work experience. Countless Government reports and research highlighted this as the most effective work-related activity to broaden students' horizons so that they are actually employable by the time they finish school. However, most placements are enabled by parents, meaning those from disadvantaged backgrounds often miss out. This lack of social mobility is a disservice

growth local businesses.

Through Workfinder, young people and employers can easily arrange work experience that is impactful and significantly more cost-effective than the current (manual) processes employed.

I'm confident that our scalable technology will create the biggest game changer in the employment sector. Our solutions also allow us to address the existing gender imbalance and the challenges faced by young women.

As a female entrepreneur from a lumber town in Canada, I feel passionately that everyone should have the same opportunities in life regardless of their background or their gender.

Founders4Schools

The Best Ideas Can Come from Anywhere

Dr Paola Casarosa



Boehringer Ingelheim has a long history of innovation that is based not only on its own discoveries but also novel finds from partners throughout the life sciences. One Nucleus talks to Dr Paola Casarosa, Corporate Vice President and global head of Business Development and Licensing (BD&L), on how this outward view with a focus on early, emerging science, enables the company to integrate the most promising ideas into its pipeline.

Boehringer Ingelheim's R&D strategy focuses on external innovation, why are external relationships important to you especially those with early stage innovators?

External innovation is a key component of our R&D strategy - a significant portion of our pipeline is anchored in external collaborations. In particular, Boehringer Ingelheim has a long tradition of committing to early stage science. This has enabled us to successfully deliver medical breakthroughs to patients and reflects the long-term vision we apply to our R&D. In recent years we have expanded our external innovation efforts substantially and again there is a particular focus on early science, which has the potential to result in first-in class breakthrough medical innovation. Our scope in this

respect encompasses a variety of approaches, including relationships with many biotech and academic partners as well as participation in public private consortia (such as the Innovative Medicines Initiative - IMI), and capital investments via our corporate strategic venture arm. External relationships with early stage innovators are important to us across all of our therapeutic areas of focus too as we recognise that the best ideas can come from anywhere. Our Research Beyond Borders initiative allows our internal scientists the freedom to explore new areas that fall outside of our core therapeutic focus by establishing exploratory collaborations anywhere around the world where new scientific concepts of interest are emerging.

What's unique about your approach to finding and fostering innovation?

I would in the first place mention our focus on early, emerging science. This goes along with our long-term vision which enables us to take intelligent risks, when we see the potential, and embark on long-lead R&D projects. It also reflects our tradition of providing scientists with the freedom to think out of the box. This enables them to pursue

seek to complement the capabilities of our partners to help them to get the maximum out of their ideas and discoveries. The relationship component has always been of central importance to our partnering strategy. We are engaging early stage life science entrepreneurs and ecosystems with a unique programme that allows us to get to know the communities as early as possible and to help provide expertise early on in the hopes of accelerating the path of delivering new innovation to patients. Our Office Hours programme is one vehicle that we use to help us become a vibrant contributor to these communities.

Can you give a few examples of your working with external partners on integrated R&D projects?

Boehringer Ingelheim is involved in academic partnerships, for example, the collaboration with University of Dundee to develop PROteolysis TARgeting Chimeric molecules (PROTACs). PROTACs are anticipated to be broadly applicable to therapeutic areas as diverse as oncology, immunology and respiratory diseases. It opens up opportunities to target disease mechanisms that have been difficult

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the most creative approaches with our partners. We place great emphasis on good chemistry in our relationships and on nourishing long-term relationships with our partners, which has resulted in many repeat partnerships. And we

to reach with existing modalities. We also have a long standing relationship with Imperial College, founded on a number of research collaborations with investigators there. We see great potential in the UK and are working to build

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relationships with many of the academic research institutions here. In fact, already this year we have executed new collaborations with investigators at the University of Southampton and University of Cambridge. On a company level, we are involved in clinical research and have an animal health research and development centre in the UK.

You are launching your Office Hours programme in the UK - tell us more and how we can get involved

Our Office Hours programme is part of a suite of offerings that we have developed to further strengthen our network and opportunities in start-up life science ecosystems. Office Hours is effectively a mentoring initiative for early innovators that connects us with bio-entrepreneurs, facilitating information sharing and open dialogue. It is designed as a consultative roundtable meeting, providing access to our internal experts and giving an industry perspective and feedback to

emerging life science companies.

Importantly, there are no strings attached for the participating companies – it is essentially free advice from Boehringer Ingelheim leaders across the value chain (from research up to marketing/market access to business development) and a new way for pharma to engage with start-up companies. We are not looking for the companies to pitch their partnering propositions to us; in fact, the companies can be working in any therapeutic area, even those outside of our core indications. The programme was developed in Boston in late 2015, and is also offered in San Diego and New York in the US. The first launch of Office Hours in Europe was in London in July and we are excited to be back for the next edition in London and Cambridge on 18 and 19 Oct. We expect to run additional sessions in the UK throughout 2018.

Anything else you would like to highlight to ON members?

We are excited about the opportunity to connect with more ON members moving forward and are looking forward to building new relationships in the UK that could pave the way to medical breakthroughs of the future. Please look for us at upcoming Office Hours events and mark your calendars for our upcoming Partnering Day in London on 26 April, 2018. This will be an opportunity to meet our senior leadership from R&D, BD&L, and our Venture Fund as well as participate in one-on-one meetings with our business development team in areas of key partnering interest.

For further information on upcoming dates and joining instructions for the Office Hours programme visit www.boehringer-ingelheim.us/partnering/how-we-engage/supporting-grass-roots-innovators.



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Building a Community Based on Genome and Biodata Research, Discourse and Enterprise

Professor Sir Mike Stratton



Professor Sir Mike Stratton spreads his time between science, as Director of the Sanger Institute, and setting the strategy and direction of the Wellcome Genome Campus, where he is Chief Executive Officer. One Nucleus speaks to him, and later to Joanna Mills, the Campus' Entrepreneurship and BioData Innovation Centre (BIC) Manager, on business, cultural and educational activities emanating from genomes and biodata.

Tell us a little about your background and roles at the Sanger Institute and the Wellcome Genome Campus

I studied medicine at the University of Oxford and Guy's Hospital, and trained as a histopathologist before a PhD in the molecular biology of cancer at the Institute of Cancer Research, London. I took up a Faculty appointment at the Institute of Cancer Research where we led the mapping and subsequent identification of BRCA2, the breast cancer susceptibility gene, and subsequently a series of further breast cancer genes and other cancer susceptibility genes. In 1999 I proposed the Cancer Genome Project and in 2000 joined the Wellcome Trust Sanger Institute's Faculty. I became Director of the

Sanger Institute in 2010, and in 2012, Chief Executive Officer of the Wellcome Genome Campus. My time is spread between my science, leading the Sanger Institute and setting the strategy and direction of the Wellcome Genome Campus. The Sanger Institute's mission is to use genomics to advance the understanding of the biology of humans and improve human health. Founded for the Human Genome Project, the Sanger Institute now leads ambitious collaborations across the globe to provide the foundations for further research and transformative healthcare innovations. The Sanger Institute has been at the forefront of genomics for the last 25 years, in 2018 we celebrate our 25th anniversary and have a mixture of celebrations and science planned to mark the occasion.

Building on its established scientific foundations, the Wellcome Genome Campus will become an international centre for business, cultural and educational activities emanating from Genomes and Biodata. The three pillars of activity are Research, Discourse and Enterprise. Yet we aim to be a community of organisations; there are 2500 staff and visiting workers on site, with shared spaces and an open door culture, with shared values of Open Science and Collaboration. This intellectual concentration together with the scientific and computing infrastructure makes this site one of a handful of genomic clusters, globally. Our scientists collaborate widely, and sit within a network of science in the region, but our reach is global.

There's a huge amount of ground-breaking science happening on Campus, what's some of the most exciting

and how will it impact the development of new technologies and healthcare?

The Wellcome Genome Campus is home to research institutes, spin-out and start-up companies, academic-industry partnerships and Genomics England; all dedicated to driving and leading life-changing genomics research and innovation for the benefit of the world. A collaborative approach and commitment to open research is behind the vision and philosophy of the Campus. The Wellcome Genome Campus is a significant part of the Cambridge life-science hub, and rivals the biomedical and genomics hubs in Boston, USA and Beijing, China.

The research endeavours at the Sanger Institute and at EMBL-EBI cover many areas, although all are linked by the overarching theme of 'Genomes and BioData'. In brief, we continue to use genome sequences to discover the genes and mutations underlying human inherited diseases and to understand evolution of human populations, to explore somatic mutations in cancer cells and in normal tissues in order to understand the processes of neoplastic change, and in a diverse range of pathogens to provide insight into their spread, whether in individual hospitals or around the world. We are providing a new underpinning of cell biology through the Human Cell Atlas which will redefine all the cell types in the human body through single cell transcriptomics and other approaches and are developing several projects using large-scale experimentation on live cells, whether organoids from human cancer, normal tissues or induced pluripotent stem cells. All of these areas of science involve large volumes of data with their

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challenges of handling, storage, organisation, transformation, analysis and presentation that Sanger and EBI scientists are expert at.

The Biodata Innovation Centre opened its doors in July 2016 to provide space for innovative individuals, early start-ups and more established companies whose work is complementary to the unique genomic research and science of the Campus Institutes. Our gateway policy ensures that companies in the Centre contribute to and fully participate in the intellectual life on Campus. Already we have examples of scientific collaborations between and within organisations, as well as knowledge exchange and mentoring opportunities.

Key partnerships include Open Targets; a unique pre-competitive partnership between the Sanger Institute, EMBL-EBI and pharmaceutical companies, GSK and Biogen, seeking to enable the systematic identification, validation and prioritisation of drug targets. Open Targets operates through a unique model of non-exclusive partnerships that foster the free exchange of ideas and expertise. Industry scientists are embedded within Open Targets and all of the information generated is made available at www.targetvalidation.org

The Centre for Genomic Pathogen Surveillance (CGPS) is a joint initiative between the Sanger Institute and Imperial College London, which uses pathogen genome sequencing for the global surveillance of disease in order to enable decision making and monitoring of threats to global public health.

Importantly, the Wellcome Genome Campus is home to Connecting Science, an initiative whose mission is to inspire new thinking, spark conversation and support learning by drawing on the ground-breaking research taking place on Campus,

through conferences, courses, public engagement and social science research. It connects researchers, health professionals and the wider public, creating opportunities and spaces to explore genomic science.

Collaboration and engagement with industry are key, but why are they so important?

Together we aim to enable scientific impact that cannot be delivered by either party alone. We have moved from conventional third party academic collaborations into partnerships that can utilise the

'Importantly, the Wellcome Genome Campus is home to Connecting Science, an initiative whose mission is to inspire new thinking, spark conversation and support learning'

Sanger Institute's unique science and infrastructure. Our partnerships with industry yield new science, increase diversity of research outputs, and also increase exposure of Sanger researchers to more applied science. There are benefits to all in having long-term, large-scale and embedded relationships. Such benefits extend to greater exchange of proprietary knowledge and materials, a bringing together of synergistic capabilities and access to external infrastructure.

In recent years, as the opportunities for genome and biodata research to contribute to healthcare benefits have increased, the Sanger Institute has undertaken a greater number of industrial collaborations. These collaborations range from a CRISPR-focussed collaboration supported by AstraZeneca, to having industry-funded post-docs embedded in the COSMIC database team, and Open Targets.

We fully support and endorse the series of commitments made by The Academy of Medical Sciences, Royal Academy of Engineering, Royal Society, and Wellcome, to ensure that translation is recognised

and celebrated as an integral part of academic research. (<https://wellcome.ac.uk/press-release/speeding-innovation-science-and-engineering-leaders-pledge-improved-support-research>)

The commitments are based on an understanding of the different and complementary roles that organisations have to play, and together we can improve the success of translation and encourage and facilitate the movement of people between academia and industry.

What will genomics look like in the future?

One of the major challenges and opportunities for biological science in the 21st century is to understand and utilise the DNA sequences that constitute the genetic code of humans and other living organisms. We are still in the early stages of addressing this challenge despite the fact that genomes already underpin most biological research and are integrating into medical practice and other applications at a remarkably fast pace. Genomes constitute enormous quantities of data and their advent has fostered a dramatic expansion of computing and mathematics based biological sciences together with infrastructure to support their handling and interpretation. Their influence and impact will further accelerate over the next 20 years through more research, diverse applications, a flourishing of commercial entities using them and increasing familiarity of individual human beings with their own genomes, attended by societal consideration of their implications.



Not many people know that Sanger has a team dedicated to commercialising the scientific research that comes from the Institute. Joanna Mills discusses why this is so important and how it fits with her work as the Entrepreneurship and BioData Innovation Centre (BIC) Manager.

Tell us about this dedicated team and why the approach works

Sanger has always sought to maximise the societal contribution of its research. This occurs predominantly through research publications and public dissemination of data. Recent advances in genome and biodata technology are creating more opportunities for application of our research, for example in determining which cancer patients will respond to which therapies. Sanger researchers are often involved in the discovery of these opportunities but do not have the resources and capabilities to take them through to the people who will ultimately benefit from them. The Technology Translation Team at Sanger works with researchers to identify, develop and partner nascent technologies with organisations better placed to enable their further development. Because of the bleeding edge nature of the Sanger Institute's research, we sometimes start a new company

dedicated to developing the technology. Without this link these opportunities would be lost.

To optimise the transfer of ideas to society we need to understand research, work closely with aspiring entrepreneurs, have a strong appreciation of market needs and develop networks that support investment and lend entrepreneurial leadership. The BioData Innovation Centre (BIC) builds knowledge and inspires entrepreneurs, attracts innovative companies to the Campus and develops those networks that support our translational activities. We have established new working partnerships with the companies based in the BIC that would not have been realised without their locating here. Working together, we support each other's activities to promote the Wellcome Genome Campus as a global hub for genome and biodata research, discourse and innovation.

What does your role involve?

My role as Entrepreneurship and Innovation Centre Manager has two very complementary parts. On the one hand I manage the BioData Innovation Centre (BIC) at the Wellcome Genome Campus – our innovation centre for young and growing companies innovating in the genomes and biodata space. On the other, I have a remit to stimulate a more entrepreneurial culture across the wider Genome Campus through a range of initiatives including a new seminar series which we've named 'From Bench to Boardroom' exploring themes around how scientists get into entrepreneurship and develop those opportunities – specifically in genomes and biodata.

It's been just over a year since the BIC opened its doors to companies from outside of the Campus, what has happened in that time and what plans do you have for the future?

The BioData Innovation Centre opened on 1 July 2016 and in just

over 12 months we've achieved occupancy levels of almost 90% with eight companies currently in place. These include the Sanger Institute spin outs (Congenica and Microbiotica), two growing companies (Eagle Genomics and SciBite), two young overseas companies (Specific Technologies and Global Gene Corp) who have chosen the BIC as their European home, and satellite teams from larger organisations such as Genomics England and Sigma Consulting Solutions. Companies wishing to join the BIC community go through our bespoke gateway application process, and because it is so focussed and narrow we have started to create an ecosystem of companies that can capture enhanced value from being co-located on Campus with the Sanger Institute and EMBL-EBI as well as each other. Crucially, these companies are also creating value for the Campus through their collaborative scientific activity, extending our reach into new networks and contribution to the conferences, seminars and other activities that form part of Campus life. Our aim is to establish the BIC as the epicentre of innovation and entrepreneurship on Campus and beyond and recently we've launched an Affiliate Programme so that nascent Campus-based entrepreneurial teams and talent are discovered, encouraged and supported in being the drivers of the high skills, high wage and high growth economy in the UK. Our future vision is to help the Campus become the leading centre for science, business, education and engagement activities emanating from the genomes and biodata field.



Congenica Celebrates International Expansion

Congenica's offices on Wellcome Genome Campus



Congenica, developer of the gold standard clinical genomics platform Sapienia for disease diagnosis, has now extended its global reach through new offices and partnerships across three continents; Asia, Europe and the Americas.

Congenica, which was only established in 2014, saw its series B funding completed in April of this year with investment from Chinese genomics giant the Beijing Genomics Institute (BGI), one of the world's largest DNA sequencing providers.

'Genetic analytics software will be a central part of China's evolving healthcare system in the coming years. We are delighted to be at the forefront of this change and committed to the benefits it will bring to patients across the globe,' said Congenica's Chief Business Officer, Shikha O'Brien.

Another of Congenica's partnerships is to support China's 100K Wellness Pioneer Project, designed to gather 100,000 full genomes from Chinese individuals. It is to be used both as a healthcare tool, and to aid in diversifying global genomic knowledge. Congenica's Chinese investors and partners

have subscribed to the company's proprietary enterprise software Sapienia, which was also used extensively by Genomics England in the UK 100K genomes project. As a result, Congenica is in a rare position of experience to aid in this large-scale and complex task.

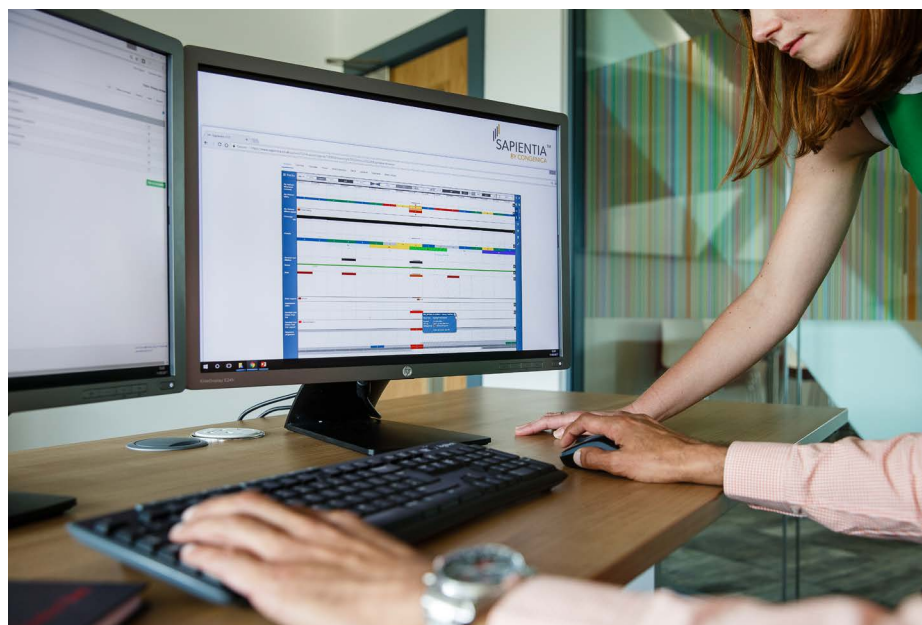
'The unrivalled, integrated, end-to-end solution provided by the Sapienia software offers multiple advantages,' said, Li Ning, Chief Development Officer at BGI.

Congenica has also seen new offices opening in the US where the company is enjoying increasing

success and market penetration. More recently the company has struck a number of international deals, including with Portugal's Coimbra Paediatric Hospital where Sapienia will perform whole exome sequencing for the country's In2Genome project. The project aims to revolutionise the diagnosis of rare genetic diseases through population-wide genomic data.

'This additional investment, these new contracts and our new locations are all part of our international ambitions and they enhance our ability to deploy Sapienia to markets where we are establishing scalable partnership models to transform genetic testing,' said Tom Weaver, CEO of Congenica.

For more information visit www.congenica.com



Clinicians using Sapienia

F-star: A Case Study for Building a Successful Biotech



F-star has developed to become a leading biotech company; this has been achieved through concentrating its own efforts on its most promising assets and by pioneering a unique business strategy. The company, which has a versatile technology platform has specialised in one format, bispecific antibodies, and focused on advancing a rich proprietary pipeline in one therapy area, immuno-oncology.

Focussing on Bispecific Antibodies

F-star's proprietary Modular Antibody Technology offers unparalleled versatility. It enables the generation of several drug formats (Fcab antibody fragments,

mAb² bispecifics, or Antibody-Drug Conjugates) and can also be applied to a broad range of therapeutic indications. Pursuing all these opportunities would pose a challenge and a significant risk for any business, therefore F-star has focussed its efforts in developing mAb² as they offer the greatest potential for delivering benefits to patients.

Focussing on Immuno-oncology

While F-star has demonstrated its ability to generate bispecific antibodies across a range of different therapy areas, the company decided to focus its own drug pipeline in immuno-oncology. It has developed a deep

understanding of the complex biology of cancer immunity and consolidated its capabilities in preclinical pharmacology, translational development, project management and regulatory affairs. F-star is currently preparing to take the first of a series of promising development programmes into the clinic next year, an eagerly anticipated milestone for the business.

Leveraging the platform outside immuno-oncology through key partnerships

F-star also harnesses the efficiency of its R&D engine via collaborations, this allows it to unlock the full potential of its platform, not only in immuno-oncology but also in other key therapeutic area such as neurodegenerative disorders. In partnering, the company has pioneered an asset centric business model that creates greater flexibility in deal structures. Through this model, F-star has been able to generate significant non-dilutive revenues to strengthen its in-house capabilities and provide returns to its shareholders.

For more information visit www.f-star.com



Horizon Further Expands Offering Through Dharmacon Acquisition

Horizon Discovery says it is 'at the epicentre' of a revolution in the pharmaceutical industry, which is seeing drugs developed for more targeted patient populations in response to increased recognition of the genetic drivers and predictors of disease.

Horizon acquired Dharmacon

in August, a global leader in gene modulation products with a fast-growing gene-editing product portfolio, which it bought from GE Healthcare in a deal which the company says will be transformational. Following completion of the acquisition, Horizon's already impressive offering now encompasses

research tools used by scientists exploring the underlying biology of disease, through the application of disease models by pharmaceutical customers to develop and manufacture novel therapeutics, to supporting the reliable diagnosis of disease with genetically defined reference standards.

(Continued on page 12)

Horizon is now firmly establishing itself as a world leader in the building, engineering, and modulation of cells, able to provide considerably more comprehensive support of the genomic research that is underpinning the life sciences.

'The ramifications of this gold rush are vast as, once the genetic drivers of disease are understood, even for rare conditions, cures

can potentially be developed. Two specific applications that promise to be crucial drivers of healthcare in the coming years are cell therapy and immuno-oncology, both areas in which Horizon is highly active,' said Dr Darrin M Disley, CEO of Horizon Discovery Group.

The company reported continued strong growth in its interim statement of 26 September, with significant margin improvements

as steps taken in 2016 to improve operational efficiencies came to fruition. Following the acquisition and £80 million fundraising, and with integration of Dharmacon underway, Horizon said it is in a strong cash position, poised for the next phase of growth.

www.horizondiscovery.com

horizon

Launching a Disruptive Medical Technology



Working with healthcare and life sciences SMEs, Onyx Health understands the challenges when launching a new medical technology that has the potential to change how a disease is diagnosed or managed.

Below are just some of the pitfalls to consider when infiltrating the NHS.

Time is of the essence

There is a careful balance between not bringing the technology to market too soon, when it does not quite work correctly or your data is not published, or spending too much time continually refining it or procrastinating so the proverbial boat is missed. For a SME with limited aftersales support, it may be wise to do a soft launch in a location where support can be easily offered and more learnt about how the product performs in everyday clinical settings.

Developing the data

Published data is a basic market entry tool, without it healthcare professionals will not be convinced a product works. A CE mark may be important, but to a clinician, it is simply a mark of safety.

Educate, educate, educate

The key here is to keep it simple; the easier it is for a healthcare professional to grasp what your product does, the easier it will be for them to identify the clinical need.

Find your champions

Every product coming to market that is going to change clinical practice needs a champion. These can be divided into two categories - influential key opinion leaders and product champions.

An influential key opinion leader will use their influence and opinion to shape the market, but they will not necessarily endorse the product. A

product champion is more likely to endorse the product, talk to other colleagues about it and look at ways of potentially bring it into their Trust or Clinical Commission Group and practice.

Understand the hurdles

Getting a healthcare professional to champion a medical technology is only the start of a very long procurement process if selling to a hospital trust:

- Product champion – needs to develop a business case to purchase the medical technology, showing where the technology will fit into existing practice, what cost efficiencies it will achieve, how it will be used, cost saving made, purchase and running cost.
- Multidisciplinary team – are there other stakeholders within the Trust who need to be brought on board? Due diligence is essential, hidden stakeholders can often de-rail the purchasing process.

From Onyx Health's experience, launching a disruptive medical technology needs careful planning. Never underestimate the time and effort it will take to achieve adoption and keep pushing ahead. If a product is good enough, eventually it will be successful.

For more information visit

www.onyxhealth.com

onyx
HEALTH

Primera Air to Launch London Stansted-USA Flights in 2018



Danish airline, Primera Air is to open a new base at London Stansted and start direct flights to New York and Boston Logan next year. From April 2018, the airline will offer daily services to New York's Newark Airport and four a week to Boston Logan Airport from May.

Flights will be operated by new Airbus A321NEO aircraft and include a choice of two cabins, full-service premium and low-fare economy, free Wi-Fi and onboard charging points.

Primera Air will be the first airline for nine years to fly scheduled services to the USA from Stansted.

Andrew Cowan, London Stansted's Chief Executive, said: 'We're thrilled Primera Air has chosen London Stansted as its UK base for these exciting and innovative new long-haul services to the USA. We know from our customers that there is enormous demand for flights to New York and Boston from London and the east of England, so the arrival of Primera Air is fantastic news for both business and

leisure passengers wanting great value, excellent service and the convenience of flying transatlantic from their local airport.

'The welcome arrival of Primera Air to Stansted offers passengers even more choice and provides great new transatlantic connections to New York and Boston – both of which are important destinations for

businesses in our catchment. I'm sure these new services will prove to be really popular and we look forward to working with Primera Air to add more routes in the future.'

Andri M. Ingolfsson, Primera Air President and Chairman of Primera Air, said: 'We are very proud to announce our new base at London Stansted and routes to the USA. With our brand new Airbus A321NEO aircraft, we are opening routes previously traditionally served only by wide-body aircraft. With unmatched efficiency of these new-generation aircraft, we will be able to offer unprecedented prices to our passengers from London Stansted to the USA. At the same time, we are very proud to be offering a low-fare/high quality product and service concept, that will be perfect both for leisure and business travellers.'

Visit www.primeraair.com for more information.



Zyme Strengthens Team and Relocates Offices

The Zyme Communications team



Zyme Communications has established a network spanning the full spectrum of the life science industry since it was founded in 2010, and has built a reputation for providing high quality, strategic public relations and marketing services. Zyme recently announced that it has relocated its Cambridge office to the Cambridge Innovation Park and Manchester office to Beehive Lofts, to better accommodate its growing team, and new client wins. Zyme has strengthened its team with the appointment of Lily Jeffery as Account Executive and Dr Michelle Ricketts as Account Manager.

Zyme's Manchester team is headed by Katie Odgaard. Katie has over ten years' experience in life science PR and marketing, including project management, technical copywriting, media outreach, conference and event planning and support, and strategic communications planning, and has a Bachelor's degree in Genetics from the University of Liverpool. Lily Jeffery will join her in the Manchester office as Account Executive. Lily has a first-class BSc (Hons) in Biomedical Science from Newcastle University where she carried out research on type 2 diabetes. Lily also worked as a marketing assistant for an online cosmetic research platform where

she gained expertise in social media analysis.

Dr Michelle Ricketts joins Zyme as Account Manager and will be based at the new Cambridge office. Michelle has several years' life science communication experience and has acquired skills in press release and content writing, marketing, branding, advertising, event management and social media. She was previously Science Marketing Specialist and Content Writer at Axol Bioscience. Michelle has a PhD in Genetics from the University of Edinburgh and has worked as a researcher at the Institute of Cancer Research and Wellcome Trust Sanger Institute.

Lorna Cuddon, Managing Director of Zyme Communications, said: 'This is an exciting time for Zyme Communications, with the expansion of our client base and team, and new offices in both Manchester and Cambridge. As more life science companies choose Zyme to support their communications programmes, we look forward to helping raise their profile within the sector.'

To find out more about Zyme Communications Ltd visit:

www.zymecommunications.com

zyme
communications
PR and Marketing for Life Science Companies

A member of United Life Sciences



Representing over 1,000 Life Science and Healthcare companies in the UK

Cambridge Epigenetix and NuGEN Technologies Sign Partnership Agreement



Cambridge Epigenetix (CEGX) and NuGEN Technologies recently announced that they have entered into a partnership agreement to integrate the CEGX TrueMethyl technology for oxidative bisulfite sequencing (oxBS-Seq) with NuGEN's innovative NGS library preparation kits. The signing of the agreement will enable CEGX to focus on its epigenetic biomarker discovery programmes, both in-house and in partnership with leading biopharma companies, and will further strengthen NuGEN's epigenetics portfolio of whole genome Methyl-Seq, Reduced Representation Bisulfite Sequencing (RRBS), and patented SPET target

enrichment systems.

Jason Mellad, CEO at Cambridge Epigenetix, commented: 'This partnership will enable both CEGX and NuGEN to leverage our strengths to facilitate advances in the epigenetics field. CEGX is committed to realising the promise of epigenetics through the development of improved, minimally invasive diagnostic and prognostic tests for accurate and early detection of a range of diseases, including cancer. We are working with leading biopharma companies as well as progressing our own high-value internal programmes, applying our expertise and advanced

proprietary technology for robust biomarker identification, particularly from liquid biopsy samples. NuGEN's reach and reputation for delivering high-quality genomics solutions to the market makes them the ideal partner to further develop TrueMethyl technology to deliver a range of new products to enhance epigenetics research.'

Nitin Sood, CEO at NuGEN Technologies, said: 'We are delighted to be working with CEGX to provide the tools to improve the understanding and appreciation of epigenetics in cellular function. The goal of all of our products has always been to maximize the information that our customers obtain from their nucleic acid samples. By combining the TrueMethyl oxBS technology with our NGS library preparation kits, we will provide our customers with whole genome and targeted methylation products to unlock the tremendous potential of epigenetics. The combination provides access to more detailed, higher resolution epigenetic information in an integrated, cost-effective solution.'

For more information please visit: www.cambridge-epigenetix.com.



Innova Biosciences Acquired by SYGNIS AG



Cambridge based bioconjugation experts Innova Biosciences announced in June that the company has been acquired by SYGNIS AG, for EUR 8 million in cash and 3.5 million in shares.

The SYGNIS group of companies now incorporates Expedeon, CBS and Innova Biosciences, with a view to eventually integrate all

companies within one brand. The integration has already begun with the cross-selling of products via the Innova Biosciences and Expedeon websites.

Following the move, Innova Biosciences' founder, CEO and CSO Dr Nick Gee, has become Chief Technical Officer of SYGNIS and Expedeon.

The companies said that Innova Biosciences' range of antibody and protein labelling products and services ideally complements the Expedeon customer base and existing genomics and proteomics portfolio. In addition, the group's international presence provides Innova with opportunity to expand even further within its already fast growing markets.

'Innova is a natural fit with the SYGNIS Group. Its cutting-edge labelling technology, market knowledge, innovation and creativity will add significant value to the

SYGNIS Group of companies and its customers. Labelling is a central application at several stages in both proteomics and genomics workflows, hence the Innova product portfolio fits perfectly with our customer base,' said Dr Heikki Lanckriet, CEO and CSO of SYGNIS and Expedeon.

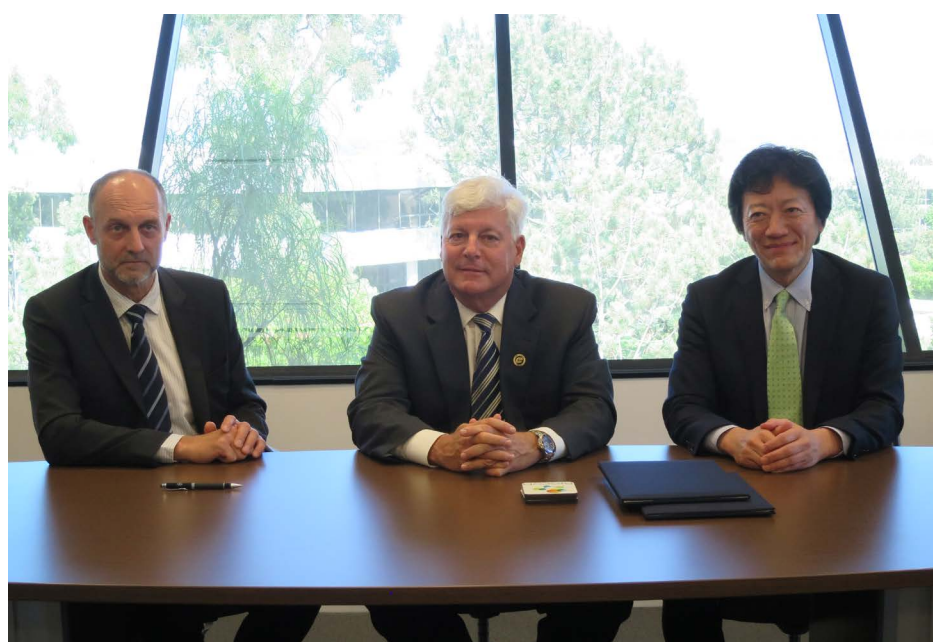
Dr Nick Gee added: 'The SYGNIS group offers a great opportunity to grow our business internationally and will give us access to new target audiences and markets. Expedeon and Innova technologies can be sold through the same sales channels,

and we were particularly attracted by the sales reach of the SYGNIS group as a whole. The proximity of our locations here in Cambridge also makes achieving synergies readily attainable. We are delighted to be part of a larger, stronger team.'

For more information visit www.innovabiosciences.com and <http://www.sygnis.com>



Making International Links



From right to left: Akihiko Soyama (President/CEO Link J) Joe Panetta (President/CEO, BIOC) and Xavier Tabary (President, Eurobiomed).

Life Science Innovation Network Japan (LINK-J) is a platform for creating new life-science industries with four functions - to 'bring together', 'connect', 'grow' and 'take off'.

LINK-J brings together a wide range of parties in the life sciences, creating new ideas, connecting people and accelerating new initiatives. The network provides an ecosystem to support open innovation based in Nihonbashi, Tokyo, which has been well-known as a centre for pharmaceutical companies for some 400 years.

Increasingly companies from a wide range of other fields such as regenerative medicine, medical devices and digital health are also gathering at the site. A ten-minute walk from Tokyo Station LINK-J was established in Nihonbashi in March 2016 and since then has attracted more than 150 members, including pharmaceutical companies, start-ups, academia, venture capitalists, NPOs and individuals, not only from Japan, but also from overseas. To 'bring together' and 'connect', LINK-J hosts symposia, seminars,

and other gatherings that focus on the many multidiscipline fields within the life science sector. It also actively support similar events organised by external organisations, both domestic and international, in total hosting ~ 370 events in the last year.

To 'grow' and 'take off', LINK-J supports communication and growth by providing spaces that encourage diverse perspectives to be brought to the table and through its acceleration programs as well as study sessions specific topics can be discussed in more depth.

In June this year, LINK-J further expanded its international network concluding an alliance with Eurobiomed in Marseille, France. This follows the network's earlier alliances with Biocom and University of California in San Diego. Please contact contact@link-j.org if you are seeking to build a network with a wide range of parties in the life sciences field in Japan.



Owlstone Medical and CRUK Initiate PAN Cancer Clinical Trial to Evaluate Breath Biopsy for Early Detection of Disease



Owlstone Medical is developing a breathalyser for disease and recently announced the initiation of the PAN Cancer trial for Early Detection of Cancer in Breath. The large scale clinical study will evaluate the use of the company's Breath Biopsy platform for the early detection of multiple cancer types.

The PAN Cancer trial is being conducted in collaboration with a team of leading cancer researchers at the Cancer Research UK (CRUK) Cambridge Centre, the University of Cambridge and Cambridge University Hospitals NHS Foundation Trust. The Chief Investigator is Professor Rebecca Fitzgerald, who is co-lead of the CRUK Cambridge Centre Early Detection Programme, Professor of Cancer Prevention at the MRC Cancer Unit, and an Honorary Consultant in Gastroenterology and General

Medicine at Addenbrooke's Hospital, Cambridge.

The PAN Cancer trial aims to develop breath biopsy tests for the early detection of bladder, breast, head and neck, kidney, oesophageal, pancreatic and prostate cancers and brain tumours, with the ultimate aim of detecting cancer much earlier, when better treatment options are available and more lives can be saved.

Professor Rebecca Fitzgerald, the study's Chief Investigator said: 'New tools that can help to diagnose cancer earlier are urgently needed and we are very pleased to collaborate with Owlstone Medical to evaluate Breath Biopsy for early detection. The PAN Cancer trial forms part of our Early Detection Programme, a flagship initiative of the CRUK Cambridge Centre that

aims to devise better means of detecting cancer and diagnosing it in the early stages, which can lead to improved outcomes for cancer patients.'

Billy Boyle, co-founder and CEO at Owlstone Medical, commented: 'Positive results from the PAN Cancer trial could be game-changing in the fight against cancer: Breath Biopsy tests for cancer detection and diagnosis have the potential to greatly improve survival across a range of cancers. Our Breath Biopsy platform is already being assessed in large scale clinical trials for the non-invasive, early detection of lung and colon cancer, and it will be exciting to see how its use can be extended to other cancer types. Success in this study would make a real difference to the lives of millions of people, and supports our vision of saving 100,000 lives and \$1.5 billion in healthcare costs.'

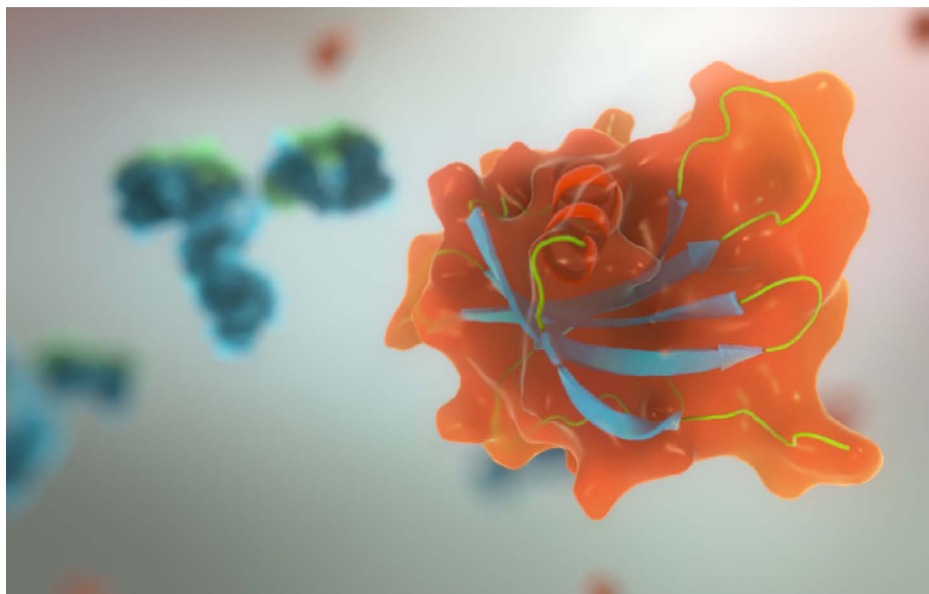
'We are very proud to have the opportunity to work with these world leading research teams on this ground breaking trial, which could have a great impact on improving cancer survival.'

To find out more visit:
www.owlstonemedical.com



Progress for Avacta's Affimer Technology

Affimer protein



Avacta has announced significant commercial and technical progress for its Affimer technology in the past twelve months. Technical benefits demonstrated by data from in-house programmes, and the results of an immunogenicity study, have 'substantially de-risked the Affimer platform from a therapeutics perspective', according to the company.

Avacta has also reported growth in the number of custom Affimer projects and evaluations in the diagnostics and research markets, including the signing of the first agreement for Affimer product development following evaluation by one of the world's largest diagnostics developers.

Further validation of the technology was provided through exclusive licensing agreements for bespoke Affimer binders with two US-based biotech companies, to support their drug development programmes.

The first saw Avacta develop a number of Affimer binders to capture a certain human protein with no species cross-reactivity, meeting demanding 'species-specific' criteria. The partner is now able to develop previously unavailable assays to support its drug development activities. For the second, Avacta generated several Affimer binders to detect a human protein, mutations of which are known to lead to poor survival rates in some cancers, and for which no antibodies are available that can

reliably differentiate between it and a group of very similar proteins. The company has taken exclusive rights to one of these reagents, to support its in-house drug discovery programmes in oncology.

Over the past year, eight scientific papers reporting the work of leading groups using Affimer technology world-wide have been published, including two papers in collaboration with Dr David Komander, in *Molecular Cell* (Michel et al., 2017) and *Nature Structural and Molecular Biology* (Gersch et al., 2017). The findings of these two papers open the door to the investigation of atypical ubiquitin linkages, which has previously proven impossible due to the lack of available tools, and holds potential impact for drug discovery. Additionally, a paper in the journal *eLife* (Tiede et al., 2017) compared the performance of Affimer binders with antibodies across seven different applications, showcasing the key benefits of Affimer technology: high target specificity, intracellular activity, small size and wide target range.

For more information visit www.avacta.com



LifeArc and Metrion Biosciences Extend Partnership

Metrion Biosciences and LifeArc (previously known as MRC Technology), have extended their existing partnership to support LifeArc's neuroscience drug discovery programme.

Metrion is providing a variety of validated electrophysiology-

based ion channel assays, including Comprehensive in Vitro Proarrhythmia (CiPA) compliant safety profiling services, and LifeArc will conduct medicinal chemistry aimed at identifying novel modulators of an undisclosed CNS ion channel target.

Metrion has extensive background knowledge and expertise in the field of ion channel drug discovery research. In addition to routine assessment of compound potency, Metrion will provide LifeArc with high quality microelectrode array (MEA) based translational assays



and access to Metrion's validated panel of cardiac safety assays. Knowledge of compound activity in the primary target assay, in neuronal networks and in cardiac

liability assays, will enable LifeArc to make rapid, informed decisions on compound progression.

Dr Andrew Southan, Chief Operating Officer at Metrion Biosciences, said: 'The Metrion team has a long history of developing, validating, and providing specialist ion channel assays to optimise and select development candidate molecules. We believe combining this with translational neuroscience and microelectrode array capability, as we are in this promising project with LifeArc, may be particularly successful in CNS research.'

Justin Bryans, Executive Director, Drug Discovery at LifeArc, commented: 'LifeArc is committed to working with cutting edge

organisations such as Metrion, capitalising on our combined expertise and capabilities to advance programmes addressing human health. Our previous experience in working with the team at Metrion has been excellent, and we look forward to continuing the relationship.'

For more information visit www.metrionbiosciences.com and www.lifearc.org



Endomag Receives CE Mark Approval for Magseed Breast Cancer Localisation Technology



Endomag recently announced that it has received CE Mark approval for Magseed, a minimally invasive breast marker used to accurately guide surgeons during breast cancer removal. Magseed will be distributed throughout EMEA by Sysmex, as part of a new 5-year distribution deal for the Sentimag surgical guidance platform.

Magseed allows a radiologist to

accurately mark the tumour site in a few minutes with a seed, smaller than a grain of rice, up to 30 days before surgery. Once implanted, the seed cannot dislodge, allowing the patient to return home and carry out normal day-to-day activities, significantly improving the patient experience. The first radiation-free surgical guidance product for both localising and staging breast cancer, Sentimag, can be used whilst operating to accurately locate the tumour before making an incision. This frees the surgeon to select the best approach, reducing the invasiveness of the surgery and providing a better outcome.

Since Endomag and Symex's partnership in 2013, both have invested in numerous clinical trials that have not only shown the technique to be as effective as the current gold-standard, but also that the accuracy of seed-guided surgery significantly reduces the need for secondary surgery; from 25-50%

with wires to less than 5%. The system now has an installed base of over 130 systems across EMEA and has been used in over 25,000 breast cancer operations.

Eric Mayes, CEO at Endomag, said: 'After the successful launch of Magseed in the US, where many of the top cancer centres are now using it routinely, we couldn't wait to make it available across Europe. Sysmex's experience with the Sentimag and Sienna system makes it an ideal partner. Together, we can now offer the first radiation-free surgical guidance platform for both lesion localisation and sentinel node biopsy using a single instrument.'

For more information visit www.endomag.com



Boost for NHS Innovation as Medtech Accelerator Announce First Award Winners



A unique joint venture between Health Enterprise East (HEE), New Anglia and Greater Cambridge Greater Peterborough (GCGP) Local Enterprise Partnerships (LEPs), and the Eastern Academic Health Science Network (EAHSN), the Medtech Accelerator provides proof of concept financial awards to support the development of medical technology and software innovations originating primarily from within the NHS. In July, it announced the first award to three pioneering projects that share in £200K to help progress their early stage technologies towards viable solutions to currently unmet healthcare needs.

The company recognises the current lack of funding available for proof of concept work in healthcare, and provides necessary support and financing for NHS-led projects in order to maximise the potential for success in bringing new life enhancing technologies to patients.

Following the first call for applications to the Medtech Accelerator, awards went to:

Award 1: Arterial GlucoSave

Dr Maryanne Mariyaselvam and Dr Peter Young - Queen Elizabeth Hospital King's Lynn NHS Foundation

Trust

Arterial GlucoSave technology is a patient safety solution to eliminate the common error of incorrect fluids being administered as the flush solution prior to blood sampling from an arterial line in the critical care setting.

Award 2: Helping children with 'glue ear' to hear

Dr Tamsin Brown - Cambridgeshire Community Services NHS Trust *

The development of a novel bone conduction headset technology for children with long-term glue ear, the persistent build-up of ear wax in the ear canal.

Award 3: Bacteriophage-based solution for the treatment of implant related infections

Professor Iain McNamara - Norfolk and Norwich University Hospitals NHS Foundations Trust **

The development of a new biologic based product coating (bacteriophage) for implanted prosthetic materials to eradicate bacterial infections in revision hip and knee joint replacement surgery.

Stuart Thomson, Medtech Accelerator commented: 'The Medtech Accelerator is a great

example of a public sector partnership working together to encourage creative thinking within the NHS. The quality of applications following our inaugural call has been outstanding and really illustrates that the NHS is full of entrepreneurial people with the ideas and expertise to improve healthcare. We are delighted to be supporting three fantastic examples of innovation and look forward to working closely with the inventors to make the ideas a reality for patients.'

Steven Wilson, Head of Innovation at GCGP Enterprise Partnership added: 'As an LEP we are focussed on helping to drive forward sustainable economic growth in our area. With Life Sciences recognised as a priority key sector for us in the recent East of England Science and Innovation Audit, we are delighted to be part of the Medtech Accelerator joint venture and to see this first round of awards being made under our co-investment.'

For more information on HEE and the Medtech Accelerator visit www.medtechaccelerator.co.uk

** in collaboration with Cambridge University Hospitals NHS Foundation Trust Clinical Engineering*

*** in collaboration with University of East Anglia (UEA), Institute of Food Research (IFR) and ANGLIAN AGRI-TECH VENTURES*



ON Helix 2017

Sharon Vosmek, CEO of Astia speaking at ON Helix



Now in its fifth year, ON Helix, the One Nucleus translational research conference, returned to the Wellcome Trust Genome Campus this summer. Proving as popular as ever, the conference centre was packed full for the keynote lectures and panel discussions, and as always there was a real buzz in the exhibition hall.

Harriet welcomed delegates to what we soon learnt to be her last major conference as One Nucleus' CEO. The surprises didn't stop there as she then introduced an addition to the programme - Baroness Manningham-Buller, the first woman to chair Wellcome Trust, and previously director-general of MI5. Baroness Manningham-Buller spoke briefly about the extended roles of Wellcome in supporting innovative, translational science before answering questions from an engaged audience. She

explained how the Trust had set up an independent subsidiary of the Wellcome Trust, Syncona, in September 2012. Syncona has gone on to successfully create a portfolio of sustainable life-science businesses around highly-innovative academic science in areas of unmet need.

The first of the three programmed keynote speakers was Sharon Vosmek, CEO of Astia, an angel investment company based in San Francisco. Her engaging talk - 'Putting the C in Science: Commercialisation, Community and Capital', and particularly that second 'C', Community, seemed to set a theme for the whole day. Sharon's route into biomedical investment had started as a patient with a heart defect who would not have lived beyond her 30s without a replacement heart valve; investing in companies like the ones that had

enabled that technology to move 'out of the lab and into [her] chest' had become her life's work. She and her colleagues believe strongly that mixed-gender teams perform better, and on principle, Astia will only invest in companies with at least one woman at board level.

David Pardoe, Head of Innovation and Initiatives at LifeArc, was the next to speak. This name will have been new to many delegates, as until June the company had been known as MRC Technology which was set up about a quarter-century ago with the specific aim of translating the science funded by the Medical Research Council into products and profit. And it has been successful in this aim - much of its latest expansion has been funded with royalties from Keytruda, a monoclonal antibody that was humanised by MRC Technology and is now benefiting thousands of cancer patients in many countries. The renaming follows investment of £20M into a new drug discovery complex in Stevenage and a diagnostics facility in Edinburgh, and the name itself reflects the idea of the company as a 'bridge between great science and greater patient benefit'. The loss of the 'MRC' component of the name also reflects the broadening of the company's interests and portfolio in recent years. The organisation now works with excellent academics, companies, charities, clinicians and patient advocacy groups wherever they are found, but with a focus on specific therapeutic areas: currently these are antimicrobials, neuroscience, personalised oncology and respiratory disease.

The global problem of antimicrobial resistance, which some have claimed to offer as serious a potential threat to mankind as climate change, was the focus of the final keynote talk. Pete Jackson, executive chairman of the AMR Centre, a new public-private research institute at Alderley Park

in Cheshire, described the place of innovative drug discovery in combating this problem. With no novel antibiotics developed for over 30 years, and only two antimicrobial NMEs registered between 2008 and 2012, antibiotic pipelines are worryingly thin, and low potential returns on investment have discouraged companies from entering the market for decades. An authoritative review into antimicrobial resistance commissioned by David Cameron in 2014 recommended an investment of at least \$2 billion in the antimicrobial drug discovery pipeline. The AMR Centre aims to fund research to fill the gap in the pipeline between blue skies research, which can often be done relatively cheaply in academia, and clinical trials. It is already part of several international consortia and initiatives including CARB-X, which has up to \$48 million to invest in biotech companies' and academic groups' research into diagnostics and drugs.

The main sessions for much of the rest of the day took the form of panel discussions. Before lunch, a panel chaired by Harren Jhoti, CEO of Astex Pharmaceuticals, discussed 'Choosing the right business model'. Using case studies of recent deals, the panellists compared the pros and cons of asset-centric models with those of the more traditional, portfolio-based ones. Neither type of model came out on top, with each seen as having advantages in some situations: the right model at the right time can be key.

On a sunny, warm day, the free ice-cream van that is now traditional at ON Helix provided popular 'afters' to



Pete Jackson, executive chairman of the AMR Centre

an excellent lunch. The long lunch break gave delegates an opportunity to meet ON Helix's first 'artist in residence', Samantha Dale Fox. She combines her work as a professional artist, trading as Dale Vulpes Vulpes (Google it!) with oncology research at AstraZeneca in Cambridge and her sketches, prints and paintings, almost all with a medical theme, were much admired.

Immediately after lunch, Sara-Jane Dunn of Microsoft Research gave a short talk that summarised her mainly unpublished research into 'biological computation'. Put simply, this is the theory behind how cells 'decide' which path to take with her current research focusing on the factors that determine whether naïve embryonic stem cells will choose to differentiate or to continue dividing. The first of the two panel sessions that followed presented some of the newest technologies in translational medicine, and the second, chaired by Magda Papadaki of the Association of the British Pharmaceutical Industry, discussed

the intriguing question of 'Do charities make the best investors?' While there was no conclusive final answer to this, panellists Nicolas Sireau from One Nucleus charity of the year, Findacure and Lars Gredsted from the Wellcome Trust illustrated just how productive – even commercially – charity investment can be.

All that remained was for Harriet to close another successful conference by thanking all speakers, exhibitors and delegates. She also flagged up the company voted by guests at the previous night's welcome reception as winner of the now annual BioNewsRound award. Microbotica, a new spinout from the Wellcome Trust Sanger Institute, is developing biomarkers and therapeutics from a deep analysis of patients' gut microbiomes. It is interesting that two more of the 10 companies on the award shortlist also work in the microbiome space – obviously all companies to watch and more exciting developments will doubtless be presented at the next ON Helix in July 2018....watch this space!

July 2018 Cambridge, UK

on helix **one nucleus**

Translating UK scientific excellence into global therapeutic strategies

One Nucleus Partner Programme Update

Our Partner Programme offers a fully integrated value proposition to organisations seeking to play an influential and visible role in the development of the life sciences community.

The key benefits of the programme are:

- Raises profile of the partner with key investors, industry partners and stakeholders
- Offers a bespoke and tailored commitment to you from One Nucleus to help underpin and meet your business objectives
- Provides access to training courses and events for free or at vastly reduced cost to enable staff development
- Positions the partner as a key thought leader in the sector in the minds of UK and international partners
- Provides significant savings over the normal costs of benefits including additional benefits only available to One Nucleus partners
- Working with our partners
- Engaging with our corporate sponsors and partners in order to share insights, whether at events or via e-communications, is an important part of our activities. Here are some examples of recent activities:
- Our Leadership Seminars are one day events focussed on challenges in specific therapeutic areas. The events are great opportunities to include in discussions our R&D partners' expertise such as AstraZeneca, MedImmune, Lilly, Roche, Amgen, J&J Innovation, MSD, the Wellcome Genome Campus or the Crick Institute. Topics to be addressed this Autumn include immunotherapies and infectious diseases.
- Our Professional Services partners provide specialist insights for our members. Penningtons Manches has hosted breakfast sessions on key topics including confidential agreements. Deloitte and Taylor Wessing add to this knowledge sharing through hosting breakfasts or network meetings. Capital Cell, Agility Health Tech, Instinctif and UL Compliance bring expertise in regulatory, accessing capital and communications.
- Our Partners providing R&D facilities, such as Stevenage Bioscience Catalyst, BioMed Realty, London Bioscience Innovation Centre, Queen Mary BioEnterprises, Chesterford Research Park, Babraham Bioscience Technologies and Norwich Research Park engage to inform members and inward investors of their location options and to involve their own tenants in our member benefits. These are also places of choice when it comes to hosting our events.
- Our Business Intelligence partners Global Data, Pharma Intelligence, PharmaVenture and Pharmaceutical Training International give our members access to strategic advice and training, also providing One Nucleus events with sector data.
- Finally, our partners in media, travel and bio-partnering space, which include First Sight Media, EBD Group, United Airlines and Flight Centre Business Travel, provide our members with significant discounts on travel and major conferences.

For more information about the Partner Programme (and costs), please contact Tony Jones at tony@onenucleus.com.



From Bio-Innovation to Health and Wealth Delivery in Tomorrow's World



The tomorrow's world of some, is the today of others. This has perhaps never been more evident than when you consider the neighbouring sectors of biomedical research, technology, data science and business. The need to capitalise on the latest innovations across all these sectors in order to accelerate the progress of delivering better patient and economic outcomes is clear. This requires more diverse teams across innovative projects in order to avoid missing knowledge and solutions from a related discipline that you had no idea existed. This requirement for diverse teams we see manifested in the emerging cross-sector collaborations, deals and investment strategies as projects travel from bench to bedside.

Our 17th Annual Genesis Conference, will again engage all the key elements for those active in R&D, finance, policy making and service provision across the life science's digital and health technology fields. It will create a vision of where the sector is heading, thereby enabling the Genesis of such cross-sector relationships in order to create and deliver a common vision of tomorrow.

Under the overarching theme of 'From Bio-Innovation to Health and Wealth Delivery in Tomorrow's World', over 70 expert speakers and panellists will lead sessions discussing what will drive business growth whilst delivering better outcomes for all.

Click [here](#) to see who's attending.

Plenary Sessions

- Innovation at the Intersection of BioPharma and Technology
- Winners and Losers 2017
- Plenary Panel Debate: What is the Role of Technology Transfer Funds in Life Sciences?
- Fireside Chat with MSD
- One Nucleus Plenary Debate – Is the Life Science Industry Ambitious Enough?

Parallel Streams

- Building Tomorrow's Deals
- Combining Strengths to Create Tomorrow's Medicines
- A Digital Tomorrow
- Developing Tomorrow's Medicines

The MedTech Boardroom

- Accessing High Growth Market in China
- Adapting to a New Regulatory Environment
- How Can we Grow Our Sector?

Click [here](#) to view the full programme.

Plus

- pLITE powered by EBD, an online 1-2-1 meeting facility and complete list of co-participants in advance
- Genesis 2017 BioNewsRound Award
- Full access to all programme and networking sessions
- Genesis 2017 Grand Prize Draw – up to £3000 of travel vouchers for work, rest or play!!
- Genesis Fringe: Events available to Genesis delegates to maximise your return on visiting London

Exhibitor Packages

Standard 3m x 2m exhibition space includes:

- 1 x delegate pass
- 1 x clothed table and 2 x chairs
- 100 word company profile including company logo in the delegate handbook

www.genesisconference.com

Tony

genesis 2017

London's premier Life Science & Healthcare networking conference

QEII Centre, Westminster, London | 14 December 2017

Genesis 2017 is brought to you by One Nucleus. This year's focus is **From Bio-Innovation to Health and Wealth Delivery in Tomorrow's World** and will build on our previous 16 years of experience in assembling a forum where industry executives, investors, academic researchers, policy makers and expert advisers can exchange ideas.

Genesis 2017 will feature:

- Plenary Presentations and Panel Debates
- Parallel Leadership Streams covering **Building Tomorrow's Deals, Combining Strengths to Create Tomorrow's Medicines, A Digital Tomorrow** and **Developing Tomorrow's Medicines**
- 800+ delegates from across the international Life Science and Healthcare industry
- 50+ exhibitors from across the globe
- Prescheduled face to face meetings
- Genesis Fringe: focused events pre and post Genesis
- 2017 BioNewsRound Award
- The MedTech Boardroom



Join in the conversation #ongc17
genesisconference.com

Purchasing

Our Support Suppliers continue to grow in number, as do the discounts that they offer to ALL our members. For the full list of our Support Suppliers please see the Purchasing pages on our website.

Clustermarket is our latest Support Supplier. It is an online sharing platform for all stakeholders in the

life science industry to list, discover and book technology, equipment and expertise within their institution or cluster.

If you would like to offer your services to our members please do contact Aline on aline@onenucleus.com.

Don't forget we can perform a cost-benefit analysis for Silver members thinking of upgrading or new companies wishing to join as Gold members. Please contact Richard on 01223 896453 or richard@onenucleus.com

Richard

Facilities Management



our Director of Specialist Services, has over 20 years' experience as a Facilities Manager and has worked for more than 30 years in the life science sector.

He can provide project management for office and laboratory fit-outs and can help with equipment service contracts, maintenance contracts, cleaning contracts, utility bills, insurance, purchasing and budgeting.

Richard has just finished the project management of the laboratory fit-out of the Trinity Building for Cambridge Epigenetix on the Chesterford Research Park.

'Richard has been an invaluable resource during the refurbishment of our new premises, providing a wealth of experience in project

management and knowledge in laboratory fit-outs. Moving from a fully managed occupancy to a full repairing leased property was a daunting task, however with Richard's guidance we managed a smooth and successful transition.' *Cambridge Epigenetix Ltd*

Richard is currently consulting at Abzena, Aqdot, Cambridge Epigenetix, Emberion, Nuformix and Nuclera Nucleics. He has previously consulted for a number of One Nucleus members on various projects including Astex Therapeutics, Babraham Bioscience Technologies, Cantab Biopharmaceuticals, Pathology Diagnostics, Zoragen, Origin Sciences, Iontas, Inivata, Econics Technologies, Telensa, FGLabs and Spirogen.

Don't forget that One Nucleus offers Facilities Management consultancy to members at a discounted rate.

Richard Dickinson (richard@onenucleus.com or 01223 896453),

	Gold Members	Silver Members	Non Members
Consultancy Day Rate	£535	£650	£800

Richard can provide help by phone or email as well as providing full onsite consultancy.

Are you looking for space as a start-up or for grow-on space?

One Nucleus provides project management for all your laboratory fit-outs.

- Setting up of laboratory equipment service contracts
- Building maintenance contracts
- Insurance
- Purchasing
- Cleaning contracts
- Utilities
- Budgeting

Contact: richard@onenucleus.com Tel: 01223 896453

One Nucleus Training Update



One Nucleus is dedicated to providing bespoke training and support to the life sciences and healthcare sector through our comprehensive portfolio of industry-specific training courses. Rapidly growing companies can sometimes overlook the need for ongoing training of employees, not always recognising that their staff are the company's most valuable asset.

We have a range of tailored training courses based on the needs of our member companies, we are constantly developing these courses and introducing new subjects as our members' needs change.

Our current range of courses includes:

- A BioSafety Masterclass: Building and Maintaining Competence in BioSafety
- Biological Safety: Management and Practice
- Effective Management of Life Science Projects
- Health & Safety for Committee Members and Representatives
- Introduction to Contracts
- Introduction to Drug Development for Scientific and Non-scientific Professionals
- Introduction to Drug Discovery –

from idea to clinical candidate

- Laboratory Health & Safety
- Presentation Skills for Scientists
- The Safe Use and Management of Laboratory Gases

Training Providers

We are proud to be working with a network of training providers to deliver a range of softer skills courses including:

- Coaching Skills for Managers
- Conducting Effective Performance Reviews and Appraisals
- Effective Influencing and Communication
- Managing Change
- Negotiation Skills
- Networking Skills
- Supervisor Training
- The First Steps in Selling

Full details can be found on the One Nucleus website.

We continue to work in partnership with Pharmaceutical Training International (PTI), a global interactive training provider. Between the portfolios of our and PTI, members can access discounts on over 80 tailored training courses

covering the breadth of the life science industry, including:

- Agrochemicals
- Animal Health
- Biopharmaceuticals
- Clinical Development
- Fine Chemicals
- Generics
- Health & Safety
- Manufacturing
- Medical Devices
- Regulatory Affairs
- Research & Development
- Softer Skills including Powerful Presentations, Project Management, Negotiation and Communication

In-house Courses – Let us Bring the Training to you

One area that has continued to grow in popularity is the development of our in-house offering.

This is where we tailor the training to suit your company and bring the course to you. This way we can save you time and travel expenses by training 8-12 of your staff on your own premises.

Do remember that One Nucleus members receive discounts on list prices for training courses.

Members of the BIA, Bionow and CCRA receive a 10% discount off the non-member rate.

All our courses can be adapted and tailored to meet your needs so please contact training@onenucleus.com to find out more.

Claire

Dates for your Diary 2017

NOV 01	BioWednesday Bristows LLP, London	FEB 7	BioWednesday London
NOV 15	Leadership Seminar Cambridge	FEB 21	Leadership Seminar London
NOV 22	Network Meeting Stevenage Bioscience Catalyst	MAR 7	BioWednesday The Francis Crick Institute, London
DEC 13	Genesis Welcome Reception London	APR 18	BioWednesday Cambridge
DEC 14	Genesis QEII Conference Centre, London	MAY 9	BioWednesday Cambridge
JAN 17	BioWednesday Cambridge	MAY 10	Leadership Seminar London

New Members

- Agenda Life Sciences
- Alderley Analytical
- Altimmune UK
- Amrop UK
- Antidote X
- Avoca Biosciences
- Bath Translations
- Boehringer Ingelheim
- bioeagles
- Boyd Consultants
- Cambridge Consultants
- Capital Cell
- Cardibase
- Catalonia Trade & Investment
- Chilled Logistics
- CK Group
- Colibri Scientific
- Colliers International-Life Sciences
- Concept Life Sciences
- Confluence Tax
- Cytel
- Diagenode UK
- Elpis BioMed
- Emberion
- Fresh Perspectiv
- GetInPulse
- Hexagon Medical Communications
- Independent - Corey Blake
- INVEST Essex
- KDH BioManagement
- Kelyon
- Marken UK
- MCAB Associates
- Molecular Pathology Laboratory Network
- Mundipharma International
- Mursla
- NCIMB
- Neuroservice SARL
- Qkine
- Resurgo Genetics
- Sphere Fluidics
- Stemnovate
- STI Pharmaceuticals
- Stratophase
- The Francis Crick Institute
- Turner Howie
- United Airlines
- University of East Anglia
- Wilson Life Sciences
- ZapaBio

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