



50 Movers & Shakers in BioBusiness 2018

Thanks to our Partners





Professor Sir Mike Stratton FRS
Director, Wellcome Genome Campus

The UK is developing a culture where innovation is seen as an extension of our science. Academic researchers are encouraged to maximise the application of their discoveries and expertise through partnership with industry, business mentoring, or creating or working for a company. *50 Movers and Shakers in BioBusiness 2018* celebrates outstanding female leaders across the sector who are navigating new frontiers in the ever-changing technologies and applications of science.

This year the Sanger Institute celebrates its 25th Anniversary. We have come a long way in that time: from one building filled with machines carrying out capillary sequencing to today where one of the largest sequencing hubs in the world supports world-leading research yet fits in one room. Genetics and genomics have progressed in the same way, with society and the NHS embracing the technology and the research insights to transform medicine and lifestyle. 25 years on, we are now able to shift our horizons to ask and answer even bolder questions. The Sanger Institute is not about its past but the future, and will continue to set new challenges and goals that seem as impossible now as starting sequencing the Human Genome Project did just 25 years ago.

The pace and scope of technological change needs to be reflected in the ways we translate this for better health; this report highlights 50 talented women who are committed to that change and who are leading, inspiring and innovating to ensure the uptake of new tools and technologies and better treatments impact on research, health and society.



Miranda Weston-Smith
Founder, BioBeat

Congratulations to the 50 outstanding women leaders selected for *50 Movers and Shakers in BioBusiness 2018*. There is no better place to look for global shapers from the bench to the clinic and boardroom, from finance to ecosystem.

The report identifies the women who are developing revolutionary bioscience products for healthcare, shaping entrepreneurial bioscience through investment, accelerating the innovation pipeline, transforming patient access to healthcare and supporting innovation from concept to market. They are making significant contributions to the UK biomedical community and economy. Please read the Top Trends to find out how you can get involved with the challenges that lie ahead.

17 Rising Stars are pioneering striking innovations. These range from new approaches to drug discovery with machine learning, tackling anti-microbial resistance with an all-round look at the genomics of human, animal and plant life and more collaborative approaches in biotech finance. Augmented reality is being used to carry out operations remotely, digital technology is making science more accessible, there's championing of open conversations about patient data, and forging of stronger links between the intersection of design and biology.

In this, the fifth year of the report, I give special thanks to the Reviewers, Wellcome and everyone who makes *50 Movers and Shakers* a reality.



Appleyard Lees[®]

We are delighted to support BioBeat18 and to celebrate the achievements of female innovators in the life sciences. At Appleyard Lees, we work with entrepreneurs and businesses of all sizes to help them achieve their commercial goals by protecting their inventions.



As a specialist marketing agency, BioStrata connects life science companies with customers to assist in the adoption of innovations that drive scientific discovery. We are proud to continue to support BioBeat in nurturing connections across the biobusiness sector.

COVINGTON

Covington is pleased to sponsor BioBeat18. As a law firm with one of the world's largest and most comprehensive life sciences industry-focused practices, and a proven commitment to diversity, Covington supports BioBeat's recognition of the women who help make the UK's life sciences sector such a vibrant industry.



Cambridge Judge Entrepreneurship Centre has been a keen supporter and partner of BioBeat since its creation. BioBeat has gained a reputation as a platform for pioneering discussions on biotech innovation and business challenges. The *Movers and Shakers* report shows the breadth of skills, experience and innovation of those making an impact.



GSK is committed to developing, promoting and retaining women at every level of the organisation – globally. It is vital that women building careers in STEM have inspirational and authentic role models. BioBeat's report demonstrates a wealth of female talent who are transforming the future of healthcare. These women are the ones to watch!



The BioBeat *Movers and Shakers* report is a brilliant celebration of 50 individuals dedicated to changing the future of science, entrepreneurship and business. Through their contributions in the life sciences, these Movers and Shakers are making a substantial difference to people's lives. Innovation Forum is a strong supporter.



BioBeat's work in connecting entrepreneurs with biotech leaders mirrors MedImmune's philosophy of encouraging new relationships and building on the opportunities which exist locally, nationally and globally; ultimately for the benefit of patients. MedImmune, the global biologics R&D arm of AstraZeneca, is delighted to continue its support.

NAKED IDEAS

Naked Ideas is delighted to support the *Movers and Shakers* report and help facilitate the conversation on sustainable healthcare at the BioBeat18 summit between the latest and greatest in life sciences and biotech. Naked Ideas specialises in helping innovative businesses position themselves in an ever-changing industry.



The Wellcome Genome Campus is home to some of the world's foremost institutes and organisations using genomics and biodata to deliver science with the reach scale and imagination to solve some of humanity's greatest challenges. The Campus is delighted to continue its support of BioBeat.

The Reviewers

The Reviewers are key to this report. Profound thanks to:

Dr Philip Jordan, Partner, Innovations, Wellcome
Dr Andy Richards CBE, Serial Biotechnology Entrepreneur and Investor
Professor Heather Wallace, University of Aberdeen who reviewed the senior nominations.

And

Dr Anne Dobrée, Head, Cambridge Enterprise Seed Funds
Dr Barbara Domayne-Hayman, CBO, Autifony
Dr Howard Marriage, Entrepreneur in Residence, Edinburgh University
Dr Marek Tyl, CEO, Innovation Forum who reviewed the Rising Stars nominations.

Advisors, nominators and supporters

Professor Alan Barrell
Steve Bates and Ed Sexton, BioIndustry Association
Dr Véronique Birault, Francis Crick Institute
Sue Charles, Instinctif Partners
Peter Crane, Rare Pharma
Dr Matthew Frohn, Longwall Ventures
Dr Melanie Goward, Dr David Milroy, Maven Capital Partners
Sarah Haywood, MedCity
Hanadi Jabado, Katharine Price, Cambridge Judge Entrepreneurship Centre
Dr Tony Jones, One Nucleus
Miranda Knaggs, Stevenage Bioscience Catalyst
Dr Nicholas Medcalf, Innovate UK
Dr Lisa Melton, Nature Biotechnology
Dr Jo Mills, Wellcome Genome Campus
Dr Jane Osbourn, Rowena Gardner, MedImmune
Dr Penny Owen, National Physical Laboratory
Dr Lisa Patel, Istesso
Dr Lawrence Petalidis
Martino Picardo
Dr Sandeep Shah, Tarilian Laser Technologies
Susanna Stanfield, JAG Shaw Baker
Dr Michael Sullivan
Dr Julia Wilson, Wellcome Sanger Institute



The Rising Star signifies Movers and Shakers who are under 40

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Developing revolutionary bioscience products for healthcare



Zuzanna Brzosko, CEO and Co-founder, Sixfold Bioscience

In 2017, Zuzanna co-founded Sixfold to combine RNA nanotechnology with gene-editing drugs and deliver gene therapies directly to cells. The technology, for example carrying CRISPR, holds promise for use in cancer and rare disease treatment. Having led the raise of the very substantial seed round, Zuzanna's mission is to develop the best-in-class drug delivery system, with a long-term vision of producing highly customisable delivery nanotools that enable precision genomic medicine.

Zuzanna completed her PhD and postdoctoral training in neuroscience, physiology and development at the University of Cambridge.



Catherine Elton, CEO and Co-founder, Qkine

Catherine co-founded Qkine in 2016 to use innovative protein engineering technology to improve the quality and range of growth factors for stem cell biology and regenerative medicine. She is passionate about improving these reagents and enabling advances in this field, which is fuelling a revolution in healthcare with applications in disease modelling, drug screening and precision medicine. Catherine secured Innovate UK funding and investment from Cambridge Enterprise and five angel investors.

Previously, Catherine led the scale-up of antibody production at Abcam and held a research fellowship at the Wellcome Sanger Institute.



Alison Mather, Group Leader, Quadram Institute Bioscience

Alison's research uses whole genome sequencing to identify the contributions of humans, animals, food and the environment to the rise of antimicrobial resistance and the spread of bacterial pathogens. Her One Health approach is providing insights and novel tools to understand these issues at an ecosystem level, which are being incorporated by governmental organisations into how surveillance data are analysed and the development of public health strategies.

Alison concurrently holds a Food Standards Agency fellowship and was previously a BBSRC Anniversary Future Leader Fellow.



Myriam Ouberai, CEO and Founder, Spirea

Myriam is developing a polymer-based technology for delivering small molecules to their targets. This flexible technology aims to maximise the efficacy and safety of drugs, and accelerate the development of personalised medicines, especially in oncology. Spirea has secured £150K of funding from Innovate UK and IP Group to demonstrate preclinical proof of concept, with the next stage being expanding the technology applicability.

Myriam previously worked at the University of Cambridge in collaboration with MedImmune-AstraZeneca. Their Nature communications paper won the MedImmune 2017 Global Excellence Award for best publication.



Lisa Patel, CSO, Istesso

Lisa and her team are leading the application of immunometabolism to the treatment of autoimmune conditions such as rheumatoid arthritis. Lisa co-invented MBS2320, a first-in-class metabolic reprogramming agent, and steered its development to Phase 2. It has already shown positive trends in biomarkers of inflammation and bone metabolism in Phase 1 and if successful, has the potential to not only inhibit the progression of disease, but to reverse bone damage in rheumatoid arthritis patients, challenging the current treatment paradigm.

Lisa is also a Partner in the life sciences team at IP Group and a Non-executive Director of Iksuda.



Noor Shaker, CEO and Co-founder, GTN

Noor co-founded GTN to develop a novel use of machine learning and quantum physics to search for new drug-like molecules. GTN is building the world's first quantum machine learning platform for small molecule drug discovery. Through GTN's technology, chemicals can be effectively simulated, analysed and discovered computationally. In 2018, Noor secured £2.1 million in seed funding and a global pharmaceutical company to sign up for a pilot.

Before co-founding GTN, Noor was an assistant professor at Aalborg University in Copenhagen. She has more than 50 publications and 1300 citations and has co-authored a book on generative methods.



**Professor Jacqui Shaw, Director,
Leicester Precision Medicine Institute,
University of Leicester**

Jacqui and her team are pioneering liquid biopsies to detect early stage breast cancers and breast cancer recurrence. They profile gene mutations and amplifications to tailor treatment to each patient's cancer. She is advising on the 100,000 Genomes project and working with Genomics England and partner companies to trial blood-based tests for future implementation in the NHS. Her work has led to clinical trials in early detection and minimal residual disease monitoring and collaborations with companies.

Jacqui is also a visiting Professor at Imperial College London.



**Baroness Joanna Shields OBE,
CEO, BenevolentAI**

Joanna's mission is to build upon BenevolentAI's position as the market leader in developing and applying artificial intelligence for scientific discovery. BenevolentAI is using artificial intelligence to accelerate the discovery and development of drugs for hard to treat diseases. These developments will positively impact the lives of millions of people.

Joanna previously served as the UK's first Minister for Internet Safety and Security, a Special Advisor to the UK Government on the Digital Economy, and Chair and CEO of TechCityUK. Prior to this, Joanna spent 25 years in leadership positions at companies such as Facebook, AOL and Google.



**Samra Turajlic, Clinician Scientist,
Francis Crick Institute and Consultant
Medical Oncologist, The Royal
Marsden**

Samra is bringing together clinicians and scientists to identify evolutionary biomarkers in kidney cancer. She led a multicentre translational trial which produced the first evolutionary classification of kidney cancer and is working towards its implementation into the clinic to better predict patient outcomes. Samra is also developing a multi-parametric biomarker across multiple cancer types to predict the response to the new generation of immunotherapy agents, checkpoint inhibitors.

Samra strives to improve the outcomes of patients with melanoma and kidney cancer through translational research.



**Nadia Whitley, CEO, Arquer
Diagnostics**

Nadia leads the launch strategy for ADXBLADDER, a new highly accurate bladder cancer test delivering results within three hours. This non-invasive diagnostic uses standard ELISA technology to detect mini chromosome maintenance protein 5 - a cancer biomarker - within urine samples. Nadia revamped the Arquer business and aligned clinical, market access and commercial strategies - securing over £2.1 million to support successful launches of ADXBLADDER in five EU markets, with more planned.

Nadia partners with several organisations to develop talents and support businesswomen, including motivational speaking and mentoring.

**Zuzanna Brzosko, CEO and
Co-founder, Sixfold Bioscience**

In the words of the new FDA Commissioner, cell and gene therapies are 'no longer the stuff of science fiction'. While product approvals and a regulatory focus have made 2017/2018 a breakthrough time, finding an effective non-viral gene therapeutic delivery system is key to unlocking their clinical and commercial potential.

**Alison Mather, Group Leader,
Quadram Institute Bioscience**

Big data brings both whole genome sequencing and microbiome analysis to the full spectrum of the food chain - animals, humans, food and the environment - to help us understand the sources and reservoirs of bacteria and antimicrobial resistance.

Lisa Patel, CSO, Istesso

Current therapies for chronic autoimmune conditions control disease progression but do not reverse it. As our understanding of the role of metabolism in disease improves, a new range of immune cell selective metabolic reprogramming agents will emerge with the potential to control inflammation and promote tissue repair, and cure these debilitating conditions.

**Noor Shaker, CEO and
Co-founder, GTN**

Disruption in drug discovery requires interdisciplinary innovation. With many of the world's most devastating diseases still entirely undruggable, novel ideas of approaching and solving traditional challenges are becoming the only way to impact people's lives.

**Nadia Whitley, CEO, Arquer
Diagnostics**

In today's economic and social environment, the goals of healthcare innovation must be about developing more patient-centred, accurate and cost-effective diagnostic solutions. The Internet of Things and imaging will drive major changes, underpinned by greater use of diagnostic biomarkers, which can form an approach for superior patient outcomes.

Shaping entrepreneurial bioscience through investment



Anne Blackwood, CEO, Health Enterprise East

In 2017 Anne co-founded Medovate, a £9 million venture backed innovation development company dedicated to the commercialisation of pioneering medical technologies arising out of the NHS. She also established the Medtech Accelerator to provide proof of concept funding for technologies in Health Enterprise East's pipeline that solve clinical unmet needs. Twelve investments have been completed to date including Ablatus Therapeutics for a novel cancer treatment, and a project for the safer injection of regional anaesthesia.

Anne has 18 years' experience in technology transfer and investing. Her previous roles include Cambridge Enterprise, and research and teaching.



Melanie Goward, Investment Director, Maven Capital Partners

Melanie joined Maven to bring more focus on earlier stage investments in young and exciting British life science and technology businesses. She led the investment into ADC Biotechnology, supporting establishment of a state-of-the-art facility for more efficient anti-cancer drug production in North Wales. She also works with the Maven team managing part of the Northern Powerhouse Investment Fund which continues to back early stage life science businesses such as Microbiosensor.

Prior to joining Maven, Melanie worked in senior investment roles with Finance Wales and NESTA. She has a PhD in genetics and is a trustee of Tenovus, a Welsh cancer charity.



Deborah Harland, Partner, SR One

Deborah has been instrumental in positioning SR One, the corporate venture capital arm of GSK, as a premier innovation driven investor since she set up the European office in 2005. Working with entrepreneurial people for courageous translation of breakthrough science into products which transform the future of healthcare is what energises her. She sits on the boards of several companies including Bicycle Therapeutics, Mission Therapeutics, F-star and VHSquared as well as Cancer Research Technology.

Deborah has extensive operational, drug development and licensing experience gained over 20 years of working in clinical development, medical affairs and business development.



Theodora Harold, CFO, Crescendo Biologics

Theodora joined Crescendo in 2016 to shape its financial strategy and help ensure the success of this next-generation T-cell enhancing company. She played a pivotal role in securing the £50 million Series B, earlier in 2018, from a stellar syndicate of investors including Andara Partners, Sofinnova Partners, IP Group, Quan Capital and Takeda Ventures. The round will take the lead programme to clinical proof of concept, as well as furthering Crescendo's pipeline of cancer therapies.

Theodora has held CFO and FD positions at several biotech, including most recently, PsiOxus Therapeutics and Mission Therapeutics, where she helped raise £55m and £26m equity respectively.



Imelda Juniarsih, Investment Analyst, BioCity

Beyond her analyst role, Imelda recognises and unlocks the potential in first-time CEOs. She coaches bioscience entrepreneurs to identify key markets, conduct customer discovery and ultimately stitch these together into a winning investment pitch deck. Her coaching has helped numerous start-ups to secure investment, including NovoSound and NexusLabs.

Imelda also founded Regalia, a property investment company, sourcing and renovating high yield properties. She recently launched a venture in photography, capturing property renovation and yoga. She has a PhD in Biotechnology from the University of Manchester.



Kath Mackay, Director, Ageing Society, Health & Nutrition, Innovate UK

Kath and her team initiated and deployed the new Investment Accelerator to precision medicine businesses to bring private investors into companies earlier via simultaneous grant funding and venture capital investment. The UK precision medicine landscape is dominated by SMEs who struggle to fund R&D, and the level of investment going into diagnostics and med tech businesses low. Kath is also advancing strategic partnerships with the charity sector. She is part of the executive management team at Innovate UK.

Kath is a stem cell biologist, and has held commercial biotech roles in the UK and USA.





Christine Martin, Life Science Investment Manager, Cambridge Enterprise

Societal impact in healthcare comes first for the spin-out investments Christine manages at Cambridge Enterprise, the commercialisation arm of the University of Cambridge. Christine supports new company teams through pre-seed and seed stages bringing, in addition to investment, advice, a network of mentors and management, links to entrepreneurs and angel, corporate and venture capital investors. Christine's portfolio includes University of Cambridge spin-outs Carrick, STORM, Z-factor, PhoreMost and Qkine.

Previously, Christine worked in technology transfer and at Biotica. Christine has a DPhil from the University of Oxford.



Anya Roy, Life Sciences Analyst, IP Group

Anya leads the sourcing and analysis of investments that enable democratisation of healthcare by application of cutting-edge technology to bioscience. She focusses on creating high-impact value propositions from digital health businesses to solve healthcare inefficiencies and empower patients. She helped create the digital mental health research framework at IP Group. Anya sits on the board of an IP Group portfolio company working in diabetes and has supported a significant fundraise for another.

Anya has a background in Mathematics from Copenhagen University and an MPhil in Bioscience Enterprise from the University of Cambridge.

Anne Blackwood, CEO, Health Enterprise East

Medtech continues to be an area underserved within the wider life sciences venture community. Advances in surgical robotics, artificial intelligence and augmented reality-based systems should generate greater share of capital as technologies and healthcare solutions converge.

Kath Mackay, Director, Ageing Society, Health & Nutrition, Innovate UK

The early detection of disease, in people who are not yet exhibiting symptoms, is making great strides. Advances in the generation, storage, curation and utilisation of patient data are key, whether it is related to whole genome sequencing or wearable devices. The UK has great strength in this area and there is huge opportunity to capture more value for the UK's best businesses.

Christine Martin, Life Science Investment Manager, Cambridge Enterprise

Innovative technologies that will bring the promise of personalised medicine to reality are being developed across many sectors; the acquisition of data (genetic and proteomic), storage, access, interrogation, ownership through to the application of advanced therapies will lead to a revolution in the treatment of disease in the coming years. This will bring new financing models, for example converging to IT and consumer models.

Anya Roy, Life Sciences Analyst, IP Group

Women's health is currently being poorly served. Thus, the need to develop technologies that serve women's healthcare is important, especially with the personalisation of medicine. The appetite to invest in women's health, be it diagnostics, services or therapeutics is set to increase rapidly.

Sharon Vosmek, CEO, Astia

Despite the level of requisite capital and the timescales to exit, family offices and angel investors continue to play a vital part in the funding landscape in the sector, incentivised by the impressive innovators and their potential for impact.



Rebecca Todd, Investment Director, Longwall Ventures

Rebecca focuses on the challenges of healthcare market adoption and backs teams that foster a culture of learning, experimentation and evolution in their start-up journeys. She draws on her background in marketing and experience of coaching lean start-up methodologies to back companies using technology with applications to improve healthcare, from new tools for research to novel digital therapeutics.

Rebecca returned to venture capital after a sabbatical. She has a PhD in genetics and, following an early career in marketing consultancy, began investing in life science companies 12 years ago, after an MBA at the University of Oxford.



Sharon Vosmek, CEO, Astia

Sharon is bringing global private investors to the UK. She drove Astia Angels' investment into RowAnalytics, a healthcare analytics company. Sharon is a founding member of Astia Angels, the global group investing in women-led high-growth companies. Sharon deliberately curated a balanced group of male and female investors, with the UK one of its focuses. Sharon is advancing investment activity and the conversation regarding the importance of women for high-performing teams.

Over the last 10 years, Sharon has grown Astia from 20 to a global community of over 5,000 investors, entrepreneurs, family offices and experts. Sharon has invested personally for 25 years.

Collaboration

Accelerating the innovation pipeline



Sylviane Boucharens, COO and Co-founder, BioAscent Discovery

Sylviane secured investment of £1.6 million in 2018 from Maven Capital to fund BioAscent's expansion as a fully integrated drug discovery CRO. She has reinvigorated a pharma site, initially scheduled for closure, recruiting expert teams of biologists, medicinal chemists, pharmacologists and compound management scientists. Her ambition is to establish Newhouse as a global powerhouse for the discovery of innovative medicines.

Sylviane has experience in pharmaceuticals discovery, latterly as head of global compound repository and in-vitro screening for Organon, Schering-Plough and MSD.



Beverley Carr, VP Business Development, Immuno-Inflammation Therapy Area, GSK

Beverley is a co-founder of the Immunology Innovation Fund, enabling GSK to invest in emerging areas of science that have the potential to offer patient benefit, but which may not yet be mature enough for traditional collaboration structures. She recently led GSK's investment in the series A financing for Sitryx Therapeutics.

Beverley has over 15 years' experience in business development including with Cambridge Antibody Technology and GSK. She has a D Phil in Chemistry from the University of Oxford and an MBA from the University of Cambridge.



Pam Garside, Director, NewHealth

The status quo in the NHS can be cemented in with decades of common practice and resistance to outside innovation. Pam helps innovators and early stage companies navigate this challenging marketplace and the convoluted governance processes by finding leaders who are willing to implement change. For example, Pam helped persuade the Milton Keynes Hospital Trust, who have a forward-looking CEO, to adopt new outpatient booking software that is helping patients and saving hundreds of thousands of pounds.

Pam is a Fellow of Cambridge Judge Business School, and sits on the investment committee of Cambridge Enterprise, Cambridge Angels and various boards.



Joanna Gould, CEO and Co-founder, VisusNano

Joanna co-founded the ophthalmology medical device company to improve patient outcomes after cataract surgery. Starting VisusNano outside of a university, Joanna and her co-founders leveraged accelerators and resources across clusters in the UK. VisusNano has won several start-up competitions, and in May 2018 Joanna led the investment of £450K from UK investors. VisusNano shows how young science entrepreneurs can found wet lab companies in collaboration with life science clusters.

After a Masters in Maternal and Foetal Health, Joanna worked in finance before completing a PhD in neuroscience from Southampton University.



Diane Harbison, CEO, Stratified Medicine Scotland Innovation Centre

Diane is collaborating with Eagle Genomics, the universities of Edinburgh and Glasgow and NHS Scotland to build the world's first shared genomics and clinical database for NASH – the most severe form of non-alcoholic fatty liver disease. Most NASH patients experience no symptoms, allowing it to progress to advanced fibrosis, cirrhosis, liver failure or liver cancer. There is no approved treatment. The NASH database will lead to tests and treatments.

Diane negotiated Pfizer's first stem cell agreement with Moorfields Eye Hospital and UCL, which is in stage 1 clinical trials, and has restored sight in patients with age-related macular degeneration.



Annalisa Jenkins, Portfolio Non-executive Director

Annalisa works closely with management teams at innovative companies to shape R&D strategies and develop commercialisation and partnering plans to maximise the value of novel healthcare solutions. She also puts in place the right leadership and governance to help them become investor-ready ahead of fund raisings, major transactions and listings.

Annalisa was previously head of global R&D at Merck Serono and head of global medical affairs at Bristol Myers-Squibb. She is a member of the US FDA's Science Board, and Chair of the Court at the London School of Hygiene and Tropical Medicine.



Louise Jopling, Senior Director Immunology Scientific Innovation, Johnson & Johnson Innovation Centre London

Louise is bringing opportunities to internal teams at J&J that historically large pharma has not embarked upon. This could be due to the molecular target remaining elusive or in newly emerging areas of science such as bacteriophage biology. Partners tend to work quickly and leanly to reach decision points and interacting with such partners requires adaptation within J&J, for example reviewing opportunities with mindsets aligned with the capabilities of a small partner.

Louise joined the J&J Innovation Centre following a research career in academia and industry.



Jane Kinghorn, Director, Translational Research Office, University College London

Jane leads the therapeutic translational strategy for the School of Life and Medical Sciences. Jane and her team are changing the shape of university-industry collaboration from the traditional single academic-led project to strategically-led alliances. The results are an enhanced commercially attractive portfolio of therapeutic interventions accelerated through to patient benefit. The office now manages five major strategic alliances with industry each with flexible and adaptable resourcing.

Jane has experience in developing therapies to clinical benefit gained from 25 years of working in large pharma and academia.

Sylviane Boucharens, COO and Co-founder, BioAscent Discovery

Growing at an estimated 11% per annum, outsourcing of drug discovery by both pharma and biotech companies continues to accelerate. Smaller companies want to access proven expertise and avoid building costly drug discovery capability, while larger companies want the increased cost-effectiveness, flexibility and efficiency compared to developing in-house infrastructure.

Pam Garside, Director, NewHealth

Data available from electronic patient records, biobank, genomic and life science companies is increasing at a rate we have never before experienced. This improved access to combined data means a rise in computational biology and applied artificial intelligence, which will benefit both research and patients. We need the trained scientists to fulfil these expectations.

Diane Harbison, CEO, Stratified Medicine Scotland Innovation Centre

As the pool of medical big data grows, shared genomic and clinical databases (known as Data Commons) will be critical to precision medicine. They allow data to be centralised, standardised, shared, processed, transformed and integrated. Data can then be used to make informed decisions about developing new medicines, identifying biomarkers or enabling stratification of patients for clinical trials.

Annalisa Jenkins, Portfolio Non-executive Director

Finding solutions to the world's major healthcare challenges will only be achieved by traditional and new players coming together united by a shared sense of purpose and willingness to embrace diverse perspectives. Science, medicine and health innovation will be realised by working together to win together.

Kerstin Papenfuss, University Liaison Manager, Cell and Gene Therapy Catapult

For cell and gene therapy, collaboration on scalable solutions will be key to bringing them to reality.



Cordelia Langford, Director, Scientific Operations, Wellcome Sanger Institute

Cordelia led the successful bid to sequence genomes of the UK Biobank cohort and is configuring pipelines to sequence endangered species in the British Isles. She is bringing more collaborative thinking into the scientific community of the Campus, through empowering a culture of questioning traditional practices, nurturing innovation and embracing cross-functional working. Cordelia directs 300 scientists and managers to deliver life-changing science with global impact. She provides strategic leadership with influence across the Institute along with key strategic external partners.

Cordelia has a PhD in molecular cytogenetics and has held research and operational roles.



Kerstin Papenfuss, University Liaison Manager, Cell and Gene Therapy Catapult

Kerstin is establishing the new university liaison function at the Catapult. The purpose is to remove technology barriers in the growing industry and through working with academics accelerate development of advanced therapy medical products. To identify ground-breaking science and cutting-edge opportunities Kerstin has designed a novel horizon scanning strategy that moves away from traditional citation-based trend detection to AI-driven semantic analysis and natural language processing in combination with social media monitoring.

Kerstin previously headed up Opportunity Assessment at LifeArc and holds a PhD from Imperial College London.

Patient Impact

Transforming patient access to healthcare



Sonya Abraham, Consultant Research Physician, Imperial College London

Traditionally, the NHS diagnoses and treats patients and biotechnology companies discover but take time to innovate and give patients access to novel diagnostics and therapeutics. Sonya works both for the NHS and with UCB Celltech to support early drug discovery and accelerate and validate therapeutic targets in immunologically mediated disease. Sonya also undertakes patient and carer workshops to highlight the importance of clinical research and engages the public to understand unmet patient needs.

Sonya trained as an academic general physician and rheumatologist and latterly in clinical research and pharmacology.



Sarah Bateup, Chief Clinical Officer, Ieso Digital Health

Sarah is leading the delivery of a digital platform that gives immediate guidance to mental health clinicians on the impact of their therapy. The service presents feedback to clinicians while they are treating patients and uses digital transcripts to identify what works for whom. This clinical decision support tool has helped thousands of patients and reversed the stagnation in recovery rates for anxiety and depression. Sarah will use this technology to improve the quality of psychological therapy for services across the world.

Sarah has delivered cognitive behavioural therapy to patients in the NHS for 30 years.



Stephanie Eltz, CEO and Co-founder, Doctify

Stephanie co-founded Doctify to drive greater transparency and access to healthcare for patients. The technology allows patients to book appointments from any device, 24-hours a day and read reviews. With a 7-figure annual recurring revenue in 2018, Stephanie and her team are investing in marketing and product to make Doctify the best platform connecting patients and doctors in the UK. Since Stephanie started this journey in 2015 she has helped over a million patients search and compare doctors covering 47 medical specialities.

Stephanie previously trained in medicine and worked as an NHS Trauma and Orthopaedic Surgeon.



Nadine Hachach-Haram, CEO and Co-founder, Proximie

Nadine co-founded Proximie, an augmented reality technology company enabling remote surgery, consultations and teaching. It allows doctors to be in an operating or consulting room and provide their expertise to another doctor regardless of location. Through Proximie, patients access centralised specialist services from their local hospital. It has been used within multiple specialties including plastics, orthopaedics, urology and general surgery in NHS hospitals and in hospitals across the world.

Nadine is a plastic surgeon and was awarded a British Empire Medal in the 2018 Queen's birthday honours.



Sadia Khan, Consultant Cardiologist, West Middlesex University Hospital

Sadia works as a cardiologist in Hounslow. She is connecting digital innovations with the everyday needs of non-experts, including citizens, in health promotion and earlier diagnosis of diseases. With colleagues, she has developed borough-wide projects to improve by 30% the detection and treatment of common cardiac conditions, in part using the Kardia Alivecor device, implemented in Hounslow from 2016, and currently being rolled out across England by NHSE.

Sadia was named as one of London Leadership Academy's NH70 inspirational women leaders in 2018.



Claire Novorol, Chief Medical Officer and Co-founder, Ada Health

Claire is leveraging artificial intelligence to make medical expertise instantly available to everyone. She is co-founder of Ada, a health platform helping millions around the globe understand and manage their health. Claire oversees medical affairs, clinical partnerships and ensures products support patient needs. Ada is used by the world's leading NGOs and healthcare systems to deliver more efficient, patient-led care.

Claire holds a PhD in neuroscience from the University of Cambridge and degrees in pathology and medicine. She founded the global community Doctorpreneurs and is a member of the UK Digital Health Council.



Tamara Rajah, CEO and Founder, Live Better With

Tamara and her team are building a digital destination for people with long-term conditions to discover everyday practical support and improve their quality of life. For example, with cancer, patients receive medical care, but the tumour and treatments cause countless symptoms and side effects: extreme itching, persistent metallic taste, incontinence, brain fog, skin burns and more. Live Better With creates and curates the information and non-medical products that can help bring relief.

Tamara spent 10 years as a healthcare Partner at McKinsey, founded three previous ventures, and holds non-executive directorships at the ScaleUp Institute and London & Partners.



Katerina Spranger, CEO and Founder, Oxford Heartbeat

Katerina founded Oxford Heartbeat to make planning for surgeries simpler, faster and more accurate, through using medical device software. Developed initially for precision stenting in patients with brain aneurisms, the technology uses novel computational modelling to create more realistic, personalised simulations of the patient's brain and medical implants during surgery. Oxford Heartbeat has received numerous awards for its innovative technology.

Katerina is a Fellow of The Royal Academy of Engineering and holds a PhD in biomedical engineering from the University of Oxford.



Laura Towart, CEO and Founder, My Personal Therapeutics

Laura founded My Personal Therapeutics (MPT) to personalise cancer treatments for patients based on their tumour genetics. MPT employs a drosophila drug-screening platform to mirror the genetic complexity of an individual patient's tumour. Then FDA-approved medicines (including non-cancer drugs) are screened to identify combinations that are effective, less toxic and more affordable. MPT works with oncologists and medical centres worldwide, including the American Medical Center in Cyprus, and KAIMRC in Saudi Arabia.

During her PhD studies at Cornell University Laura founded Cematix, a women's health company leveraging data and genomics, raising over \$60 million.



René van der Merwe, VP Clinical Respiratory, MedImmune

René applies digital technologies to deliver improved patient care for respiratory diseases. She leads an international clinical development team that is developing respiratory biologics and is also investigating how wearables, biomarkers and predictive algorithms, can bring life-changing benefits to patients. She has led many global development programmes that have progressed to Phase 3 and marketing authorisation, including Benralizumab and Tezepelumab for the reduction of exacerbations in asthma and COPD.

René qualified as a physician in South Africa and has over 20 years' experience in both hospitals, biotech and pharmaceutical companies.

Sonya Abraham, Consultant Research Physician, Imperial College London

Many immune-mediated inflammatory diseases are now well controlled on biologics. There is an unmet need to get patients into drug free remission and the holy grail is cure of autoimmunity and focus needs to be placed on this. Repairing tissue damage after inflammation is something that is also important.

Sarah Bateup, Chief Clinical Officer, Ieso Digital Health

75% of people with anxiety and depression go untreated in the UK. We need to learn what works for whom. This is only possible by leveraging large and comprehensive digital data sets. With hard work, tenacity and collaboration between public and private sectors we have the opportunity to defeat mental illness.

Nadine Hachach-Haram, CEO and Co-founder, Proximie

As augmented reality technology develops, its software will become more embedded within healthcare. There will be greater clinical collaboration between hospitals and surgeons in different countries resulting in a real and impactful scaling of expertise.

Laura Towart, CEO and Founder, My Personal Therapeutics

Recent life science deals have illustrated the value of big data and analytics. Pharmaceutical companies recognise that data and artificial intelligence can drive the identification of new drug targets and intelligently populate clinical trials. We will see a lot of similar transactions and increased utilisation of big data.

Rene van der Merwe, VP Clinical Respiratory, MedImmune

Digital technology can provide valuable data to inform future therapies and revolutionise personalised healthcare. Digital innovation will transform patient's lives and will increasingly be fundamental to pharmaceutical research and patient care.

Supporting innovation from concept to market



Natalie Banner, Lead for Understanding Patient Data, Wellcome

Natalie is championing more open conversations and policy about the way patient data is used to develop clinical and research tools, technologies and treatments. Particularly in light of GDPR, those who manage or use data held in health records and from patients need to be clearer on explaining their purposes and how confidentiality is protected. Natalie works with clinicians, patient groups, researchers and policy-makers to understand the questions patients and the public have, and to develop resources to explain some of the complexities of data use.

Earlier, Natalie was a postdoctoral fellow in philosophy at King's College London.



Vivian Chan, CEO and Co-founder, Sparrho

Vivian co-founded Sparrho to reverse the trend of specialist science being accessible only to scientists. The Sparrho platform allows users to explore and understand complex science through non-technical descriptions written by experts. These experts also help to create weekly 3-minute digests of the latest scientific research. In 2018, Sparrho launched a partnership with GSK China, providing physicians across the country access to cutting-edge science via GSK's portal.

After her biochemistry PhD at the University of Cambridge, Vivian worked in venture capital. She sits on the Government's Department for Digital, Culture, Media and Sport's Digital Economy Advisory Group.



Laura Collister, BREXIT Lead, BioIndustry Association

In preparing for the UK post BREXIT, Laura is working to ensure the right infrastructure is in place for medicines regulation to safeguard patient safety and public health in the UK and Europe. This is despite some public calls for regulatory divergence, especially immediately post-referendum. Government now understands the benefits of regulatory cooperation and advocates for it. It featured in a Ministerial letter to the Financial Times and the 2018 Prime Minister's Mansion House speech. Laura also works with European industry partners, stakeholders and the Brexit Health Alliance.

Before joining the BioIndustry Association Laura worked at organisations including GSK and Vodafone.



Jacqui Hall, VP & Lead for Scientific Learning, MedImmune

Jacqui connects employers, educators and government to drive science skills which are vital for business innovation and growth. She supported development of the Industrial Strategy and the Life Sciences Sector Deal, Chairs the Cambridge Skills Panel for the Science Industry Partnership and is helping to build a pipeline of high-quality science apprentices, influencing government and employers on the apprenticeship levy and the wider skills needs for industry.

A chemist with 30 years' drug development experience, Jacqui leads MedImmune's global skills agenda, and is a fellow of the Royal Society of Biology and the Institute of Innovation and Knowledge Exchange.



Danuta Jeziorska, Scientist, MRC Weatherall Institute of Molecular Medicine, University of Oxford and Co-founder, Innovation Forum Oxford

Danuta co-founded Innovation Forum Oxford to accelerate innovation by providing entrepreneurial training to hundreds of scientists in health and life sciences. She built a platform for showcasing science and knowledge exchange that brings together hundreds of members of academia, industry, the NHS and government. Danuta also helped form TechTonic, an organisation that supports women in the technology sector, where she is a Director.

Danuta is co-founding a genomics spinout at the University of Oxford.



Angela Osborne, Managing Director and Founder, eXmoor pharma

Angela is helping to bring novel, life-saving cell and gene therapy products to market via innovative manufacturing infrastructure. She has reduced manufacturing cost whilst increasing capacity in advanced therapy facilities targeting cancers, orphan diseases and transplant rejection by, for example, designing closed processes in larger, lower grade manufacturing cleanrooms. Angela is also Co-founder and Director of the ATMP Manufacturing Community bringing 250 of the UK's process developers, manufacturers and key suppliers to develop manufacturing best practice in the UK.

Angela has 30 years' experience in biopharmaceutical, cell and gene therapy businesses, processes and facilities.



Kay Parkinson, CEO, Cambridge Rare Disease Network

Kay is developing new ways of raising awareness of the many unmet needs faced by patients affected by rare diseases. She harnessed research from Cambridge University students to establish a Rare Disease Nurse Network, to provide home nurse support for patients and carers, the service ultimately connecting through telemedicine, to centres of excellence. Kay also set up CRDN Company Forum for companies working in rare disease to share knowledge, experience and talks.

Kay, the mother of two children affected by the ultra-rare disease Alstrom Syndrome, founded the charities Alstrom UK and Alstrom Europe.



Helene Steiner, Chief Creative Officer and Co-founder, Cell-Free Technology, Director and Co-founder, Open-Cell

At Cell-Free, Helene develops computational and biological design tools for scientists to create new proteins. Cell-Free is focused on reducing the time and costs associated with protein prototyping to lower the barriers of entry to biology with the ultimate goal of creating consumer products and applications. Open Cell provides affordable lab space for start-ups innovating at the intersection of design and biology. She holds a Kavli fellowship from the National Academy of Sciences.

Helene was previously a research fellow in Microsoft Research Cambridge. She has won numerous awards.

Natalie Banner, Lead for Understanding Patient Data, Wellcome

Patients are increasingly wanting access to their own records as well as bringing self-generated data to their care, whether from apps, wearables, or from their own research into their conditions. Patient empowerment will really be driven by data, which may not always be mediated by clinical expertise. This has the potential to change the dynamic of clinician-patient relationships.

Vivian Chan, CEO and Co-founder, Sparrho

Harnessing the growing power of artificial intelligence will be key for the next five years in biobusiness. Companies need to embrace this: the most successful will make use of artificial intelligence to find and parse scientific research, analyse trends and identify specialist hires.

Jeziorska Danuta, MRC Weatherall Institute of Molecular Medicine, University of Oxford

To maximise the untapped potential of academic research, entrepreneurial training should be a part of core postgraduate training at universities.

Angela Osborne, Managing Director and Founder, eXmoor pharma

We are now in the exciting phase of overcoming the engineering challenges of reducing cost of goods for cell and gene therapies and ensuring sufficient supply in order to meet global market demand and thereby vastly improve patient outcomes.

Kay Parkinson, CEO, Cambridge Rare Disease Network

Drug re-purposing for rare diseases will offer faster routes to much needed medicines for patients. The UK strategy for rare diseases, published in 2018, will form a framework for better co-ordinated care.

Professor Joyce Tait CBE FRSE, Innogen Institute, University of Edinburgh

Our future regulatory systems will need to be much more adaptive to the needs of innovative technologies than they have been in the past, while continuing to ensure safety, quality and efficacy, as built into the aims of the UK Industrial Strategy.



Professor Joyce Tait CBE FRSE, Innogen Institute, University of Edinburgh

Joyce leads the research at the Institute on a new framework, including clinical regulations, that supports more proportionate and adaptive governance of innovative technologies (PAGIT). Innovations in robotics, artificial intelligence and new genomic techniques will potentially transform health care, but the regulatory systems in place for the products can unnecessarily delay or prevent societally useful outcomes. PAGIT addresses these regulatory mis-matches.

Joyce is a member of the Prime Minister's Council for Science and Technology, the Synthetic Biology Leadership Council, and many policy initiatives.



Karolina Zapadka, Business Acceleration Manager, Babraham Research Campus

In the last twelve months, Karolina has developed and launched the first life sciences-focused acceleration programme aligned to a bio-incubator in Cambridge. To facilitate the creation and growth of biotech companies, she has established partnership agreements with biotech, pharma, consulting companies and investment banks. In addition, she has developed a mentoring programme for life sciences ventures.

Karolina has over seven years' experience working in pharma and emerging biotech companies in Cambridge. She is a chemist with a PhD from the University of Cambridge.

BioBeat17 Moments



BioBeat17:
Re-shaping biotech
partnering
@ the Crick



'Let's supercharge
growth for biotechs
with partnerships'

Véronique Birault

Véronique's panel left to right: Natalie Mount,
Lucinda Crabtree, Jane Dancer, Sarah Howell



Talking permeability for success in biotech careers

Left to right: Kate Bingham, Angela Russell, Barbara
Domayne-Hayman, Andrea Spezzi, Julie Simmonds



Manifesto for biotech collaboration

Collaboration is in the lifeblood of biotechs, so let's strengthen the ties with academia and finance to build strong biotechs.

- 'The UK, and especially the Crick, is leading the precision medicine revolution which offers tremendous opportunities for academics and entrepreneurs to partner to develop drugs that have transformational impacts on patients' lives.' **Kate Bingham, Managing Partner, SV Health Investors**
- 'We need to bring together the brightest minds to solve societies biggest healthcare challenges. Industry and academia can leverage their respective strengths to translate big ideas to treatments that change lives.' **Sarah Howell, CEO, Arecor**
- 'We need biotechs to have access to the big data sets that are emerging in academia, for example genomic datasets, proteomic datasets.' **Natalie Mount, CSO, GammaDelta Therapeutics**
- 'Biotech and academia depend on each other. Great academic programmes cannot reach patients in need around the world without biotech, and biotech would not exist without great academics. We need to nurture each other, learn from each other and advance science together.' **Andrea Spezzi, CMO, Orchard Therapeutics**
- 'We as biotechs need to find out more about all the good science in academia. Coming to the Crick is a wonderful step in that journey.' **Jane Dancer, CBO, F-Star Biotechnology**
- 'Let's think beyond the role of an academic moving to become a biotech CSO. There are impressive CEOs who have come straight from academia, some after their PhDs – although these are the exceptions rather than the rule. It all depends on the individual.' **Barbara Domayne-Hayman, CBO, Autifony**
- 'We need to collaborate to find solutions for the different funding cycles for academia and biotech. Academic junior research positions are generally funded for three years, yet biotech funding rounds are for up to two years.' **Andy Richards, Serial Biotechnology Entrepreneur and Investor**
- 'Rigorous scientific testing and rationale at the early stage is crucial.' **Lucinda Crabtree, Senior Analyst, Woodford Investment Management**
- 'Biotechs need a Plan B for finance from the word go. They need to think beyond grants, start-up, series A, B rounds. Large corporate investors need to know when a company is going to hit milestones.' **Julie Simmonds, Director of Equity Research, Panmure Gordon**

Challenges and opportunities for biotech collaboration were discussed at the BioBeat17 summit on Re-shaping biotech partnering, held at the Francis Crick Institute.

Véronique Birault, Head of Translation, Francis Crick Institute

Miranda Weston-Smith, Founder, BioBeat



