

Appendix O, Life Science and Economic Organisations

Babraham Research Campus

Supports

Babraham Research Campus (BRC) is a co-location of early stage and scale-up life science companies with the academic community of the Babraham Institute. It has over sixty companies on the campus, and provides not just space for such organisations, but access to scientific capabilities, within a supportive and active science and investor community. The Institute is a world leading basic research institute that in addition to making fundamental discoveries, collaborates with and scientifically supports the development of the companies.

There has been a long-standing positive relationship between the BRC and the Wellcome Genome Campus, at both at an academic level, and also in terms of mutual support provided to companies located on the respective sites. Other examples include start-up companies that have emerged from either campus (e.g. Kymab, Eagle Genomics) relocating to the other site to benefit from the distinct facilities each of the sites can provide. On this latter point it is worth noting the distinct, yet symbiotic capabilities the two campuses. The Wellcome Genome Campus has a strong genomics and biodata focus, whilst the BRC as a greater focus on cellular and signalling functions and therapeutic discovery and development.

Life Sciences is one of the great UK success stories. The centres of academic excellence such as the Wellcome Genome Campus, and the life science companies that are created and locate in Cambridge and the surrounding areas- South Cambridge in particular- are key to the For rapidly expanding genomic companies such as Congenica, the Campus offers an environment of uncompromisingly excellent science, an unrivalled pool of multidisciplinary talent and a magnet for global investors and corporate partners. The planned Campus expansion would facilitate the growth of that ecosystem in a way that would maximise the opportunity whilst being sympathetic to the needs of the community. It will help companies such as Congenica to scale, to succeed and remain independent.

Regarding the goals of the UK Life-sciences' Industrial Strategy, genomics and biodata are at the heart of these national initiatives with both Cambridge and the Sanger Centre have pivotal roles in delivering success in these. The community that is envisaged by the Campus expansion will both provide a place for training a new generation of skilled biodata scientists and the jobs to sustain them. Life-Sciences is one of the great UK success stories. The centres of academic excellence such as the Wellcome Genome Campus, and the life science companies that are created and locate in Cambridge and the surrounding areas - South Cambridge in particular - are key to the region's and the UK's success in this area, creating new jobs, continued growth and new knowledge.

BioMed Realty

Support

Part own Granta Park. Have established strong links with the Genome Campus and recognise the specialist nature of the work that is undertaken at the Campus which differentiates it from other science parks in the area.

EMBL - European Bioinformatic Institute

Support

This letter is written to express EMBL-European Bioinformatic Institute's strong support of Wellcome's Genome Campus master planning application.

The European Bioinformatics Institute is part of the intergovernmental-treaty organisation, European Molecular Biology Laboratory (EMBL), independent from the UK's relationship with the EU. Funding members states are not exclusively European, including both EU and non-EU nations.

EMBL-EBI has been present on the campus since 1994 and has become the world leader in bioinformatics data resource provision – the science of analysing, storing and sharing large biological datasets. They participate in large-scale open science endeavours and collaborate extensively with both academic and commercial research partners to ensure that the research data and subsequent knowledge can be readily accessed, aligned and easily understood throughout the globe.

EMBL-EBI has grown rapidly, driven by the spectacular increase in biological data production and analysis that now takes place in life science research. Their staff and long-term visitor numbers have doubled in the last decade, now standing at over 800 members of personnel, drawn from over 60 different nationalities. This reflects the international focus on this developing area of science, with growth unlikely to slow given the diverse use of genomic data in biotechnology, medicine and agriculture.

EMBL-EBI immediately require approximately 5,000 sqm of additional office space to house their growing personnel and external collaborator numbers and are working with public funders to secure this investment. EBI growth, international expertise and unique fixed-service contract terms mean that they constantly recruit high numbers in competitive fields. Attracting the best international talent requires both the delivery of cutting-edge science and potential applicants feeling secure that the wider environment can support individual lifestyle needs.

EMBL-EBI strongly support the Wellcome's master planning application. They believe expanding the research and translational floor space available is necessary to allow the continued development of all campus entities and, in particular, for their own immediate growth. Having campus-linked accommodation would allow them to better support new international recruits

and hundreds of short-term visitors and collaborators. They are confident that, once constructed, EMBL-EBI would quickly occupy and maintain rolling tenancies for a 150 of the planned accommodation units.

EBI also believe their staff and short-term visiting contractors would benefit hugely from an expansion of education and cultural facilities. Encouraging a strong work-life balance is central to the ethos and culture at EMBL-EBI and on-site facilities to support this would be welcome. The current onsite nursery is oversubscribed, and EMI would also look to working with Wellcome to ensure that an expansion of educational facilities on the campus reflected the growing needs expressed from their staff members.

Genomics England

Support

Genomics England is the company set up by the Secretary of State for Health and Social Care in 2013 to deliver the 100,000 Genomes Project and leases a sequencing facility on the Hinxton Campus and has a team of staff that works there.

Genomics England have recently sequenced 100,000 genomes from around 85,000 people. Participants are NHS patients with a rare disease, plus their families, and patients with cancer. Having completed the 100,000 Genomes Project, the aim now is to create a new genomic medicine service for the NHS – transforming the way people are cared for. Patients may be offered a diagnosis where there wasn't one before. In time, there is the potential of new and more effective treatments.

The data generated will also enable new medical research. Combining genomic sequence data with medical records is a ground-breaking resource. Researchers will study how best to use genomics in healthcare and how best to interpret the data to help patients. The causes, diagnosis and treatment of disease will also be investigated. Genomics England also aim to kick-start a UK genomics industry. This is currently the largest national sequencing project of its kind in the world.

Over 100 industry partners are members of its Discovery Forum, ranging from small bio-techs to global pharma. Many have access to selected, de-identified whole genomes and clinical data from the Genomics England dataset to undertake research. The agreement is that all discoveries have to be shared with Genomics England's science team, as well as all the other Discovery Forum members, guaranteeing the quickest possible developments for patients. As such, it is extremely important for Genomics England to be located on Campus, as they need the close proximity to the research institutions and other Campus partners.

Genomics England strongly support the proposed planning application, which will enable the Campus to be the international centre of excellence in genomics and biodata. This will be delivered through a mixed-use expansion of the Campus genomics ecosystem to include more research and translation space, community and amenity uses as well as homes for Campus staff.

Global Gene Corp

Support

Global Gene Corp (GGC) is a genomics data, insights and applications company with a vision to democratise healthcare through genomics in collaborations with key stakeholders in healthcare. The company is creating genomics data and insights in under-explored populations – starting in India with focus on Asia, Middle East, Africa, and Latin America – to supplement already existing genomic data from Caucasian populations; and then applying Artificial Intelligence (AI)/Machine Learning (ML) and proprietary algorithms to create and accelerate tailored therapeutics development, drug discovery and stratification.

GGC solves the lack of genomic data diversity that is severely limiting potential of genomics; 60% of the world's population comprises less than 5% of genomic data and insights. GGC's assets are very valuable for applications into therapeutics R&D, stratification of patients, and other research and precision-medicine applications.

GGC's work will truly allow the genomics-technology led democratisation of healthcare as these insights will serve as the foundation to create the positive disruption in healthcare and make precision medicine accessible to every individual.

GGC's collaborations on the Wellcome Genome Campus, and the talent they employ for their R&D team, help make this vision a reality.

In taking the decision to site the R&D headquarters in the BioData Innovations Centre on the Campus, this unique location offering access to the globally renown Sanger Institute and EMBL- EBI, along with the scientific talent and other world-leading companies working at the cutting edge GGC's scientific field, played a large factor in establishing their presence on the Campus. The proposed expansion will continue to strengthen this ecosystem in all aspects. It will form an international centre of excellence in genomics and biodata through the mixed-use expansion of the Campus genomics ecosystem to include more research and translation space, community and amenity uses as well as homes for Campus staff. GGC will continue to benefit from the close relationship with the institutes on site and the other businesses working alongside as they all expand too.

The Campus already has an excellent reputation for genomics. The expansion will enable an un-rivalled centre of global excellence to be formed and GGC's are excited at the prospect of working with and contributing to this as the expansion progresses.

Illumina

Support

Illumina has a global research and development team, with strong links to the early days of the Wellcome Genome Campus ("Campus"). The Campus has been the hub of innovation in genomics from sequencing the first human genome to developing new technologies and tools in genomics. Illumina has both contributed to, and benefitted from, the ecosystem around the Campus, including being able to attract and train the world's best scientists, transferral of talent in genomics and informatics, being co-located with entrepreneurial genomic start-ups and research collaborators.

Illumina currently occupies space on Campus in the Ogilvie building and the BioData Innovation Centre (BIC), and has successfully delivered the 100,000 Genomes Project in partnership with Genomics England and the NHS

Many patients with rare genetic diseases and cancer have benefited from this study. This is an example of the opportunities for collaboration and success which has been created within this Campus environment, the ultimate goal of which is to bring benefit to patients to deliver genomic medicine services to the NHS. In order to support this goal, Illumina needs to expand its facilities and team on Campus to meet demand in the next five years. It is extremely important that Illumina has the required physical space on the Campus to continue its work as it could not achieve the same results if its teams were not specifically located on the Campus being adjacent to one of the largest concentrations of genomics and biodata expertise in the world.

Expansion of facilities at the Campus will also enable the current companies located there to grow. This is an urgent need as many companies will outgrow their space in the less than two years. This is testament to the success of the Campus team in facilitating young companies to thrive. The new plans will also enable more entrepreneurs on Campus today to succeed by translating their world-class science to spin-out innovative companies.

In addition, the expansion will attract other companies, contributing to this important genomics and biodata ecosystem, boosting local employment and talent retention in the Cambridge area. These opportunities align closely with the goals of Illumina, the mission of which is to unlock the power of the genome

As the cost of housing in the local area can be challenging, the provision of new amenities, including housing for Campus-linked workers, will be beneficial in helping to create a Campus that can attract and retain talent. To know that staff based at the Campus would have the opportunity to rent or buy a property on site will be a real asset in the future.

Illumina support the expansion as an important symbol of Britain's outward looking and global approach to science.

London Stansted Cambridge Consortium

Support

The Consortium brings together public and private sector organisations which have

the common aim of seeking economic growth, higher employment rates, providing places for people and business while preserving the quality and character of the UK's Innovation Corridor. South Cambridgeshire District Council, which is a member of the Consortium, has not sought to influence the contents of this submission.

In 2016 a commission led by Sir Harvey McGrath with five independent commissioners confirmed the importance of the Innovation Corridor as the leading cluster for life sciences and tech in the UK and concluded by suggesting that it could become one of the world's leading clusters for life sciences and tech within the following 20 years.

The Genome Campus is already one of, if not the, leading centre for genomics in the world. Its continued growth is essential for it to remain at the forefront of this important technology, which is already revolutionising healthcare in the UK and will continue to ensure that the country continues to be a world leader.

Provided this growth is sustainable and achieved in accordance with local planning and other relevant policies then the London Stansted Cambridge Consortium wishes to give its full support to the outline planning application.

Next Generation Diagnostics and Specific Diagnostics

Support

Extends support for the well-crafted plans that are under consideration. Provides a brief background on the very productive experience since opening their office on the Campus:

Background

Specific, founded in 2011, is based in Mountain View, California, in Silicon Valley, and is engaged in developing new systems to speed determination of antibiotic susceptibility and resistance, to help doctors much more quickly ascertain which antibiotic will be effective in combatting an infection. This has become crucial in an era where infections are becoming increasingly resistant to antibiotics. At the time Specific took occupancy of their offices in the BioData Innovations Centre (the "BIC"), on September 1, 2016, Specific were initially looking for offices in Central Cambridge, but upon being introduced to the WTGC they rapidly recognized not only the harmony and beauty of the Campus as a work environment, but also the opportunity presented by proximity to the world's richest concentration of leading expertise in pathogen genomics. Specific are quite proud to have the distinction of being the first US company to have the good taste and judgement to open an office in the BIC.

Engagement with Sanger Scientific Leadership Upon Arrival on Campus

Immediately upon arriving on Campus, Specific were privileged to be introduced by Sanger innovations leader Dr. Adrian Ibrahim to a set of Sanger Institute pathogen

genomics group leaders. Our company, Specific (www.specificdx.com), is developing systems for hospital microbiology clinics, and while its technology is not genomic, the relationship between our technology and genomic methods quickly led to a collaboration with a distinguished Sanger group leader, Professor Julian Parkhill, FRS, one of the world's pre-eminent pathogen genomics experts, which soon extended to his colleague Professor Sharon Peacock. Drs. Parkhill and Peacock have been leading advocates of the positive impact for microbiology clinical care that will come to all of our benefit as sequencing becomes cheap and fast enough to be used for routine patient care. Among the benefits will be a positive transformation in our ability to detection transmission of infection between patients and thereby prevent infection outbreaks in hospitals.

Expansion of our Business and Formation of a New Company

As this collaboration deepened, fostered by daily interactions it became clear that there was great opportunity to form a new company, a sister company to Specific, dedicated to bringing the power of whole genome sequencing of pathogens to the hospital clinic. Specific's insight and customer relationships formed a springboard in planning for this new company, Next Gen Diagnostics formed in mid-2017.

NGD, also based in our increasingly crowded office in the BIC, has now developed what they believe to be a world-leading capability to automate the bioinformatic analysis required after completion of sequencing, almost instantly providing the clinic a clear window into which patient infections are almost identical and therefore very likely the result of transmission, as well as ever-more accurate diagnostic (drug selection) guidance based on the insight furnished by whole genome sequence. It should be stressed that this endeavor would have been impossible just 5 years ago, as the cost of sequencing then would have prohibited its routine daily use in patient care. This informs what a very dynamic and promising time this is for the development of new genomic technologies across health care, an endeavor in which the Sanger Institute and the WTGC is the acknowledged world leader.

Our Hope for Expanded Facilities and the Appeal of an Integrated Campus

They will fill the small space occupied in the BIC, as both of their companies grow and prosper they face the need for space to thrive and grow. Specific is a microbiology diagnostics company with laboratories in two buildings in Mountain View, and as they establish activity in the UK the proximity of pathogen researchers on Campus prompted their interest in opening up a laboratory on Campus, but at the moment there is no lab space to be let.

Likewise, as NGD is now bringing its first services to hospitals in the UK, the United States and elsewhere its team of experts is growing. In viewing the expansion plans that are before, they are struck by the continued tradition of exquisite architectural quality, landscape planning, which makes it such a pleasure to work on the Campus, as well as the prospect of housing so that some of their ranks can live and work without the often long journey to Campus. The aesthetic quality of the Genome Campus has fostered their ability to attract the very most accomplished people in their field, and they see that this quality is planned to

continue in the proposed expansion of Campus. They will be eager to be among those considered to occupy space in the new facilities should they become available.

The Unique Benefits to Society of Integrating Facilities for Companies with a Science Campus

The new company they formed since joining the Campus, Next Gen Diagnostics, is the direct result of the close and frequent informal interaction that arose between the founder and its company scientists and the world leading pathogen bioinformatics experts on the Campus. It is said with certainty that if instead of opening an office in the BIC they had selected an office in central Cambridge, the new company would not have been formed. This is just one example of the fruitfulness of an integrated Campus, where facilities for genomics-focused businesses, both laboratory and office, are within walking or cycling distance to absolutely world-class genomics science. Given the assurance that Wellcome Trust brings the commitment to execute the Campus expansion with the same quality of architecture, open space planning and landscape quality they have demonstrated on the primary Campus, this seems a world-class opportunity to create an opportunity for new life-science companies to form and grow, in an environment that is extraordinarily well-conceived and executed.

Open Targets

Support

Open Targets (OT) is a unique pre-competitive public-private partnership that uses human genetics and genomics data for systematic drug target identification and prioritisation. OT are aiming to change the way in which drug discovery projects are selected to improve their success rate and provide better, safer drugs. Founded by EMBL-EBI, the Wellcome Sanger Institute and GSK, the collaboration has now grown to include Biogen, Celgene, Sanofi and Takeda. The partnership has an operational budget of up to £42 million over the next five years and operates out of the EMBL-EBI South building collaboration space. OT run more than 40 projects and have employed more than 80 staff at The Sanger Institute (WSI) and EMBL-EBI who work with scientists from our commercial partners. These projects have connections with the other companies on the site, for instance at the Biodata Innovation Centre where both Genomics England and Eagle Genomics use some of OT tools.

Over the 5 years since establishment, Open Targets has been a substantial success, including renewing the commitment of its founding partners. As well as conducting projects within existing groups at WSI and EMBL-EBI, OT run several core activities that demand wet and dry laboratory space to support the overall programme, for instance to provide validation of drug targets. OT also require extensive collaboration space to host visitors from our partners to foster the collaborative nature of the academic – industry partnership, and to hold OT meetings, conferences and teleconferences.

OT success has been enabled by the unique nature of the campus as a centre of excellence for genomic sciences and a hub for academic and industry collaboration. However, it is fair to say that future expansion of our activities will require increased capacity in terms of scientific expertise on Campus and at the level of office and lab space. For this reason, OT view the proposed expansion of the Campus with excitement and are anxious to be able to utilise additional capacity to further our collective success, promote the site as a globally recognised leader in genomic sciences and apply this knowledge for the benefit of society

SciBite

Support

SciBite (SB) is a rapidly growing scientific software business that is proud to reside on the beautiful Wellcome Genome Campus. SB currently work with the world's leading science-based companies and institutions, including both major UK pharmaceuticals, providing an incredible network for discussion and new ideas. SB are renowned in the industry as innovators, challenging legacy business models and technologies and replacing them with new approaches fit for the new data-driven world.

SciBite offer a complete semantic services platform that can be used as a data analytics solution by end users and also as a 'pluggable' component to transform existing IT infrastructures into more scientifically aware systems. SciBite's technology rapidly scans scientific text and identifies the key concepts stated, such as drugs, proteins, companies, targets, outcomes, measures. In doing so, unstructured text is transformed into ontology-based indexed data.

As a smaller business located in the BioData Innovation Centre, the facilities on campus have helped SB to work and be viewed as a world leading business. SB are also very proud to show its customers, friends and families around campus. SB feel very privileged to be on the campus and think it will only get better the longer they stay and grow. The facilities and campus itself are very impressive and have helped attract top talent to support our growth.

From a shared learning and recruitment perspective, it makes far more sense to be co-located with other science-based businesses. SB have found that its candidates are very impressed with the location and facilities. Its team has been able to attend seminars and talks as well as aid support for charitable activities.

As SciBite continues to grow and expand, it would love the opportunity to be able to expand on campus and allow companies such as itself to grow and benefit from the collaborations available within the Campus itself.

Sigma

Support

Sigma is a design agency focused on user experience and digital inclusion. Sigma design services and digital products that help people to live and work better. Its

focus on health and life sciences made the Genome Campus the perfect location for its specialist team, as its research and design methods are highly collaborative. Sigma can go where its users are, support their prototyping and feasibility work and engage with clients at the early inception or start-up phase. The BioData Innovation Centre team in particular welcomes collaboration and has fostered a community that is open to new ways of working.

There are huge opportunities ahead for taking genomic and bioinformatic research into clinical application. This will demand new partnerships, ways to spark and support innovation and routes to take research into practice. A larger community at the Wellcome Genome Campus will boost that potential and provide support from R&D through to implementation.

The proposed development is underpinned by the need to attract, train and retain the best people. World-class science requires world-class scientists. The Campus is one of the largest concentrations of genomics and biodata expertise in the world and an important symbol of Britain's outward looking and global approach to science. Sigma is part of a global company. Headquartered in Sweden, our parent company proactively seeks the opportunity to do work in emerging markets and support tech innovation. Sigma have an extensive eHealth division and they are proud to say the UK team is close to scientific and health excellence.

The Campus provides access to events, meet-up groups and a community who are open minded new ways of framing problems. This has been the ideal location for Sigma to explore services around health and life sciences. The hugely successful Biodatahack is as an excellent example of bringing diverse people together to tackle real world problems.

The Sigma team is happy to be on campus. It's an excellent place to work and a great location for colleagues to visit. It looks forward to seeing it grow in the coming years.

Wellcome, Connecting Science

Support

Genomics is rapidly changing not only biological research and development, it is also entering people's lives and influencing healthcare and lifestyle decisions. Genomics is therefore relevant to us all. Connecting Science (CS) believe that it is essential that the Wellcome Genome Campus, as the home of the human genome, should play a visible and constructive role in the public discussion and dialogue around this revolutionary science. CS's mission is to enable everyone to explore genomic science and its impact on research, health and society. CS connect researchers, health professionals and the wider public, to spark new conversations and support learning by drawing on the ground- breaking research taking place on the Wellcome Genome Campus.

Its programme currently delivers training and learning opportunities for research and healthcare professionals across the UK, and beyond; manages a world-class events venue; supports scientists to undertake public engagement activities with

schools and community groups; and researches societal attitudes to genomics in order to bring public voices into policy and practice decisions.

The expansion of the Wellcome Genome Campus presents a huge opportunity to extend the reach and impact of the Connecting Science programme. CS events are consistently oversubscribed, indicating the strong demand for its cutting-edge topics. As genomics becomes embedded within healthcare provision in the UK, via the NHS, the need for a workforce with the appropriate skills and training in this area will only increase.

The Campus expansion offers the potential to substantially increase the CS training offer, reaching many more research and health professionals than is currently possible, in areas such as genetic counselling, biodata analysis, and informatics.

The masterplan would also bring the opportunity to increase CS work inspiring the next generation of genome scientists, by expanding its schools programme with bespoke spaces and facilities. CS already host visits to the Campus from key stakeholders such as school, community and patient groups, but are completely at capacity. An expanded site would allow CS to increase the scale of this activity, opening up this most personal of sciences to the world, and playing a part in developing the biologists and computer scientists of tomorrow.

Realising the benefits of genomics will only be possible in an environment where everyone has had an opportunity to contribute to conversations about the applications and implications of this science and have had access to relevant resources and training. The proposed expansion of the Wellcome Genome Campus is an essential part of this undertaking, and will be a beacon for responsible research practice, being open to both public and professional audiences, allowing all voices to be heard.

Wellcome Sanger

Supports

Re-iterate key points from Case for Growth presentation:

1. The theme of the Campus is Genomes and BioData and the Campus vision is to be the international centre of excellence in genomics and computational biology;
2. This vision is founded on three pillars; scientific research, enterprise and innovation, and education and engagement, all pertaining to Genomes and BioData.
3. The Campus is established as a critical piece of UK science infrastructure and with 2500 people represents the largest community of researchers focussed on Genomes and BioData, on a single campus, anywhere in the world;
4. At the heart of the Campus, the engine of the genomics eco-system, are two world class, complementary research centres: the Wellcome Sanger Institute and EMBL-European Bioinformatics Institute;

5. The Campus was the largest single contributor to the Human Genome Project with more than a third of the project sequenced by the Wellcome Sanger Institute;
6. Since its establishment in 1992, £3.2 billion has been invested to-date in discovery research on the Campus;
7. The growth in data is exponential. In the last 12 months the Wellcome Sanger Institute has generated more petabases of DNA sequence than the last 25 years combined;
8. Research in Genomes and BioData continues to embody inspirational new directions for humanity and the planet with our most recent established initiative having the intent to DNA sequence all species of life (animals, plants and fungi) in the UK over the next decade and then subsequently on Earth;
9. Over the last decade the Campus eco-system has grown to include entities involved in innovation, translation, clinical application and commercial activities relating to Genomes and BioData including Open Targets, Genomics England, Health Data Research UK (HDRUK), and the Biodata Innovation Centre with the multiple small to medium sized companies accommodated within it;
10. The Campus “Connecting Science” initiative has developed major plans for education, discourse and public engagement in Genomes and BioData as these become part of everyday life in 21st century society;
11. The Campus competes on a global basis for talent and translation opportunities with the United States, Asia and Europe;
12. Genomics is a core aspect of the Life Sciences Industrial Strategy and the near future of a genomics-enabled National Health Service and the campus will play a vital role in delivering both;
13. The Biodata Innovation Centre, home to small and medium sized genomics companies is full and existing tenants require additional space in the short-term;
14. Colleagues are currently in discussions with potential future occupiers for over 40,000sqm of the 150,000sqm contained in the outline planning application. These occupiers have approached the campus directly for space because they see significant advantage in being co-located alongside the research institutes. If they cannot be accommodated on campus the opportunities may be lost to the UK;

The expansion plans represent a momentous opportunity to ensure that the full scientific, health, societal and economic benefits of Genomes and BioData are realised.