

The Babraham Research Campus – supporting the UK bioscience industry

The Babraham Research Campus, near Cambridge, UK, provides around 115,000 square foot of laboratory and office space for early-stage bioscience companies alongside the world-renowned Babraham Institute. The aim of the Campus, which was established in 1998, is to support new bioscience companies and catalyse the commercial exploitation of biomedical research. Companies on the site have access to research facilities, infrastructure and support services, as well as being in close proximity to the scientific expertise at the Babraham Institute and elsewhere in the Cambridge area.

The Campus is managed by Babraham Bioscience Technologies Ltd (BBT), which oversees the administration and development of the site.

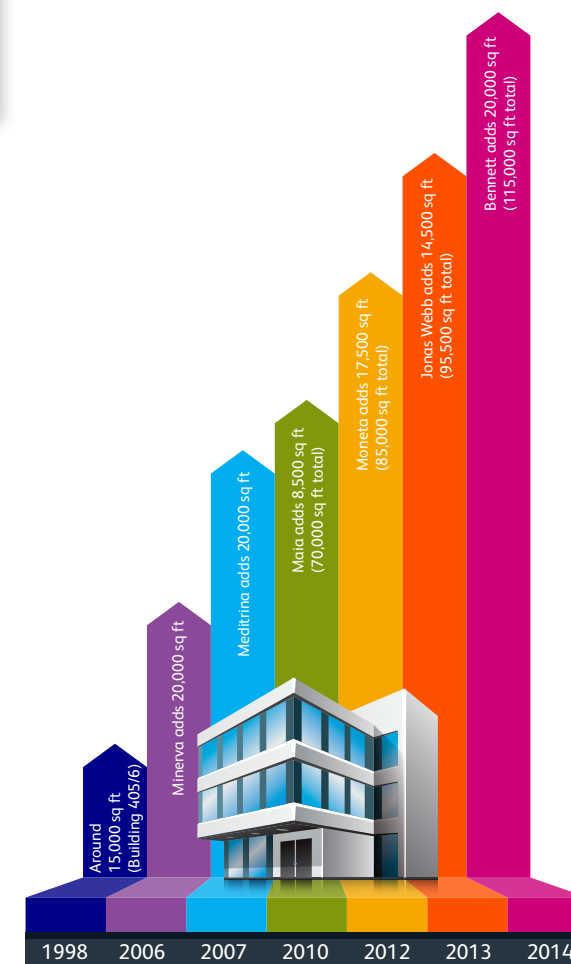
This case study shows how the Campus has developed since the bioincubator was established in 1998, and how three companies currently based on the Campus are benefitting from the facilities it offers.



Campus growth

Since it was founded in 1998 the Campus has expanded from 15,000 sq ft to more than 115,000 sq ft by 2014

Campus buildings have been 85 % to 100 % occupied since the Campus opened (lettable floor space in square feet, based on when buildings were officially opened).



1998	2006	2009	2011	2012
<p>1998 The Babraham bioincubator is established. It aims to provide laboratory and office space, services and expertise to new biomedical start-up companies¹.</p> <p>2001 The bioincubator is fully occupied by tenant companies. The bioincubation facilities are extended with the Building 200 series².</p> <p>2002 BBT are granted planning permission for two further bioincubator buildings³.</p> <p>2004 Construction begins on 'Minerva', the first new bioincubator building at Babraham.</p> <p>The bioincubation facilities on the Campus now house 21 companies⁴.</p> <p>BBT take possession of the Minerva building.</p> <p>2005 The first tenants move into Minerva.</p>	<p>2006 The Minerva building is officially opened by Mr Phil Willis MP, Chairman of the House of Commons Science and Technology Select Committee. At the time, Minerva housed four companies: Cambridge Biotechnology Ltd, NovaThera Ltd, Stem Cell Sciences plc, and Cyclacel⁵.</p> <p>2007 The second new bioincubator building, Meditrina, is completed. It is fully occupied within six months⁶.</p> <p>Her Excellency Madame Fu Ying, Ambassador of the People's Republic of China, officially opens the Meditrina building⁷.</p> <p>XiangCam TCM Research Centre (XiangCam), a collaboration between Chinese enterprise and academic institutions in China and the UK, is the 50th biomedical company to occupy the Babraham Research Campus, as well as the first international company on the site⁷.</p>	<p>2009 <i>Bioinformatics company Eagle Genomics moves to the Babraham Research Campus (see company profile).</i></p> <p>BBT announce plans for a new bioincubator building, Maia. Construction is scheduled to begin in early 2010. Maia is fully let before completion⁸.</p> <p>2010 The Maia building is officially opened by Dr Julian Huppert MP⁹.</p> <p><i>Wellcome Trust spinout company Kymab Ltd joins the Campus (see company profile).</i></p>	<p>2011 BBSRC sets out its strategy to support innovation through the research and innovation campuses associated with strategically funded institutes. The initial focus is the Babraham Research Campus and Norwich Research Park.</p> <p>BBSRC receives £44M for investment at the Babraham Research Campus. This includes a fifth bioincubator building, Moneta, two follow-on buildings (one chemistry, Jonas Webb, one biology, Bennett Building) for companies seeking increased space and to remain for longer on the campus, a new Central Scientific Services Building 580, improvements to infrastructure including roads and utilities and a new composting facility¹⁰.</p> <p>Construction of the Moneta building begins. It is just over 50 % let before completion¹¹.</p> <p><i>Pharmaceuticals company Mission Therapeutics Ltd moves into the newly-completed Moneta building (see company profile).</i></p>	<p>2012 The bioincubator building Moneta is officially opened by the Minister for Universities and Science, David Willetts¹².</p> <p>2013 The Jonas Webb building – a new follow-on laboratory (chemistry) building - is opened by Minister for Universities and Science David Willetts. 50 % of the space in the Jonas Webb building is let before completion¹³.</p> <p>2014 The Babraham Research Campus now has 51 companies on site, occupying 99 % of the lettable space¹⁴, and more than 95 companies have benefitted from the Campus since it opened. The Campus now provides around 95,500 square feet of serviced facilities to support new ventures, and continues to expand.</p> <p>The new Bennett Building is 88 % let by early 2014. It is due to be completed in late 2014 to provide a further 20,000 sq ft of lettable laboratory and office space.</p>

Kymab Ltd¹ joined the Babraham Research Campus in 2010. The company's Kymouse technology is transforming the discovery and development of fully human monoclonal antibody therapeutics and vaccines². Both The Wellcome Trust and The Bill and Melinda Gates Foundation — two of the world's largest healthcare foundations — have invested over \$70 million to enable the company to create a world-class pipeline of fully human monoclonal antibodies and vaccines.

Kymab's drug discovery pipeline is focused on the therapeutic areas of immune-oncology and immunology. It collaborates with others to exploit its discovery and development capability and fuel the drug discovery pipelines of large pharmaceutical companies. The company also has an academic access programme to collaborate with leading experts interested in translating research from the bench to the clinic.



Kymab is the first company to spin out from research at The Wellcome Trust Sanger Institute near Hinxton in Cambridge. The company chose the Babraham Research Campus to base its operations as the Campus provides high-quality research laboratories as well as the flexible capacity and services the company needs for its rapid growth³. Their location on the Campus also allows Kymab to take advantage of Babraham's well-regarded animal welfare and ethical review process, overseen by researchers at the Babraham Institute. It also enables Kymab to continue its close association with the Sanger Institute, which is only five miles from the Babraham

Research Campus, taking advantage of the critical mass of internationally-renowned basic research and industry expertise in the area south of Cambridge.

Cambridge has become a major hub for monoclonal antibody technology and expertise that has encouraged several small companies working in this field to move to the Babraham Research Campus. Alongside Kymab, the campus also hosts Bicycle Therapeutics, Crescendo Biologics, Recombinant Antibody Technologies, and antibody manufacturer Alpha Biologics⁵.

The methods to produce monoclonal antibodies were first developed at the MRC Laboratory of Molecular Biology in Cambridge in the 1970s⁴. Further work at the MRC-LMB and the Babraham Institute developed and refined the techniques required to produce human monoclonal antibodies.

Monoclonal antibodies are one of the best-selling classes of drugs, largely because they work well and are generally quite safe. They are biological drugs which bind to specific target molecules involved in the mechanisms that lead to disease. The antibody targets can be on the surface of cells associated with disease, which can direct the immune system to eliminate the diseased cell, or block the function of the disease target molecule. Monoclonal antibodies are being used to treat a range of diseases including cancers and autoimmune diseases such as rheumatoid arthritis⁶. 'Fully human' monoclonal antibodies, such as those produced by Kymab, are designed to improve safety and effectiveness by avoiding unintended immune responses in patients.

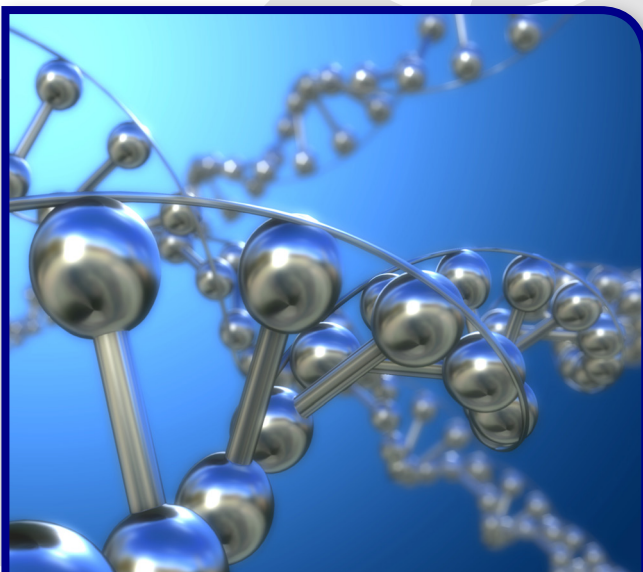
Kymab Ltd is a spinout company, founded in 2009, from the Wellcome Trust Sanger Institute in Cambridge. The company received £20M Series A equity financing from the Wellcome Trust investment division in 2010. It is based in the Meditrina building on the Babraham Research Campus and, in early 2014, had 42 employees.

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Based on the Babraham Research Campus since early 2009, the bioinformatics company Eagle Genomics¹ delivers products and services to answer the challenges associated with large-scale 'omics' data and its application to real-world problems. Blending science, technology, industry and informatics, Eagle works side-by-side with customers, using its expertise to address key challenges in health, wellness, food and environmental sectors.

Bioinformatics is the use of computational techniques to analyse large quantities of biological data, such as the hundreds of gigabytes of data generated by a single DNA sequencing run using next generation genome sequencing (NGS) technology. To organise and manage these massive data sets, and to get the best out of the data through complex data analytics, requires specialist computer infrastructure and skills. Eagle has the skills, know-how and technologies to work with companies and academic laboratories worldwide and help them to analyse and interpret their data.



A single DNA sequencing run can generate many gigabytes of data
Image: fotolia

The location on the Babraham Research Campus has clear benefits for Eagle. According to the Eagle Genomics blog², "Babraham has worked really well for us, providing flexible space, plenty of resources and facilities to use that would be otherwise very hard to gain access to."

Eagle recently won a contract through a Small Business Research Initiative (SBRI) competition, managed by Genomics England, which supports efforts to analyse by 2017 the entire genomes of 100,000 NHS patients with cancer or a rare disease⁴. In 2013, Eagle secured an external investment of £1M from Midven's Rainbow Seed Fund, London Business Angels, Cambridge Angels, Cambridge Capital Group and Government Angel Co-Fund as well as business angel investment from several individuals and groups, which has allowed it to accelerate its product development⁵.

The services and support network provided to Campus tenants, together with the prestigious facilities available, have allowed Eagle to focus on its business and on delivering services to its clients. The company also makes use of the conference facilities on the site for their annual Eagle Bioinformatics Symposium organised every March.

Other Campus benefits include access to meeting room facilities and guest presentations featuring on- and off-site life science companies. The supplier exhibitions and informal social gatherings also provide plenty of networking opportunities.

Established in 2008, Eagle moved to the Babraham Research Campus in 2009, occupying a small office that could accommodate five people. Since then the company has grown alongside an expanding customer base, and by 2014 employed more than 20 people. Eagle will soon move to a new office, which will be able to accommodate up to 35 people, in the new flagship building on the Campus.

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MISSION Therapeutics Ltd¹ is a small biopharmaceutical company developing cancer therapies that target enzymes involved in the DNA damage and repair processes within cells. The company was created by a core group of scientists led by Professor Steve Jackson of the Gurdon Institute, University of Cambridge, and moved to the Moneta building on the Babraham Research Campus in 2011 following an initial Series A investment of £6M. They now have several potential drugs in development targeting lung, bone and breast cancers, amongst others². In 2013 the company raised a further £20 million to build its internal platform and take its internal projects through to the clinic.

Jackson's previous company, KuDOS Pharmaceuticals, was based at the Cambridge Science Park, but he established *MISSION* Therapeutics at Babraham. Their location on the Babraham Research Campus provides *MISSION* with access to the specialist laboratory infrastructure, equipment and expertise they require. *MISSION* has also developed strong links with other researchers on the Babraham Research Campus. In particular, the company has recently been awarded a BBSRC CASE studentship with Dr Simon Cook at the Babraham Institute.

MISSION is developing anti-cancer drugs that target mechanisms required for cells to repair damaged DNA³. Healthy cells rely on several such mechanisms, but cancerous cells often favour just a single DNA repair mechanism. By designing drugs that inhibit whichever DNA repair mechanism the cancer cells depend upon, *MISSION* researchers aim to selectively kill cancer cells with few toxic side effects for healthy cells.

DNA repair mechanisms are regulated by a process known as 'ubiquitination' and the reverse process of 'deubiquitylation', where a small protein, ubiquitin, is removed from a target protein. This process is fundamental to many cell processes including DNA repair. *MISSION* Therapeutics is developing expertise and drugs that target deubiquitylating enzymes, based on fundamental research from Jackson's laboratory in Cambridge⁴.

The integration of *MISSION* onto the Babraham site is valued by the company. According to Chief Operating Officer Niall Martin, "Being part of the Babraham community has been highly beneficial in helping *MISSION* grow through its ability to provide flexible lab space and infrastructure that can evolve with a company's needs. Plus the benefit of tapping into the great science has been extremely helpful in our research".



Scientist examines biopsy samples
Image: 123RF

Established in 2011, by 2014 *MISSION* Therapeutics Ltd employed 20 people. In 2011 the company raised £6M in Series A financing from a venture capital syndicate led by Sofinnove Partners. This was followed in 2013 by a Biomedical Catalyst Feasibility Award from the Technology Strategy Board and £20M in Series B funding as Pfizer Venture Investments joins their investor syndicate.

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Science team working with microscopes in a laboratory
Image: 123RF