ATDBio – the History of a Company

1985–2005

Before ATDBio

In 1985, husband-and-wife team Prof. Tom Brown (then Lecturer in Chemistry at the University of Edinburgh) and Dr. Dorcas Brown (an experienced nucleic acid scientist) founded Oswel, one of the first oligonucleotide synthesis services in Europe.

Oswel was established as a service for the academic community, with funding from the Wellcome Trust but, through a management buyout from the University of Edinburgh (one of the first of its kind), Oswel became a highly successful and profitable small business, with around 20 employees at the time of its sale to Eurogentec in 1999.

After Tom and Dorcas's involvement in Oswel ended, the company struggled in the hands of its new owners before the UK operations were shut down. The experience of what made Oswel successful, as well as how quickly things went wrong afterwards, informed much of Tom and Dorcas's strategy with ATDBio.

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2005–2013

Early years in Southampton

In his academic role, now at the University of Southampton, Prof. Brown started making oligos for previous customers as a favour, and it quickly became apparent that there was an unfulfilled market for specialised oligonucleotides. Tom and Dorcas started ATDBio in 2005 at the University with some former staff from Oswel, an existing customer base, and even some equipment that had been made available (and with no external financial support).

By 2005, there was more competition in the oligonucleotide synthesis market than when Oswel was started 20 years prior. While Oswel was a general, relatively high volume oligonucleotide supplier, and also offered other services such as DNA sequencing, with ATDBio, Tom and Dorcas focused on a particular segment of the market: high purity, complex, often highly chemically modified oligonucleotides, which were not readily available elsewhere. Owing to a lack of competition, ATDBio was able to quickly establish itself as a leader in this market worldwide. However, owing to the technical difficulty of producing these types of complex oligonucleotides, the relatively small size of the market, and limited room for expansion at the Southampton site, the company grew slowly and organically (while remaining profitable every year).

Partly as a result of Prof. Brown's academic background, ATDBio often worked with small start-up companies (University spin-outs), whose pioneering technologies required (and depended on) high quality complex oligonucleotides, sometimes providing oligonucleotides initially free of charge. On at least two occasions these companies have grown into large (multi-million dollar) biotech companies, and they are among ATDBio's biggest customers to this day.

2013–2020

Expansion to Oxford

ATDBio has always been heavily involved in research and development, with strong links with Prof. Brown's research group (which moved to the University of Oxford in 2013). ATDBio funds much of its own research, which is focussed on three main areas:

- Constantly striving for incremental improvements in oligo synthesis, by experimenting with new chemistry, new equipment and new techniques (this work benefits every customer order).
- More specific projects for customers. Customers often approach ATDBio with unusual projects in mind, and ATDBio's scientists can usually predict what is likely to be possible based on their experience. However, in some cases the projects are so cutting-edge that a research project (which may last weeks or months) has to be undertaken, with constant dialogue with the customer. The customers in this scenario often have a clear idea of what they want to accomplish, but do not have strong chemistry knowledge. Often, insights gained from these projects have unexpected future benefits. These projects are funded from the sale of oligonucleotides to the customer.
- Other, more speculative projects on the use of oligonucleotides in new areas which are not currently large markets, but could be in the future (typically funded by research councils). ATDBio currently has projects in gene editing, DNA nanotechnology and single-cell sequencing.

By 2013, ATDBio had become very busy and had started to outgrow its premises at the University of Southampton. This meant that further expansion was not possible, and it was difficult to take on research projects (owing to lack of space but also time).

The management team decided to establish a second site at the Oxford Science Park (initially a small satellite lab, and then a larger facility in 2014). This site would allow ATDBio to establish a presence in Oxford, where it had customers, and to form closer links to the University of Oxford, where Prof. Brown's research group was now based. The Oxford R&D lab was set up by Dr Tom Brown Jnr, Tom and Dorcas's son (who joined the company full-time in 2010), and Dr Joanna Sobek Brown (Tom Jnr's wife, who joined in 2013), and is now also run by Dr Asha Brown (who joined the company full-time in 2017).

The latter three all hold undergraduate chemistry degrees and PhDs from the University of Oxford.

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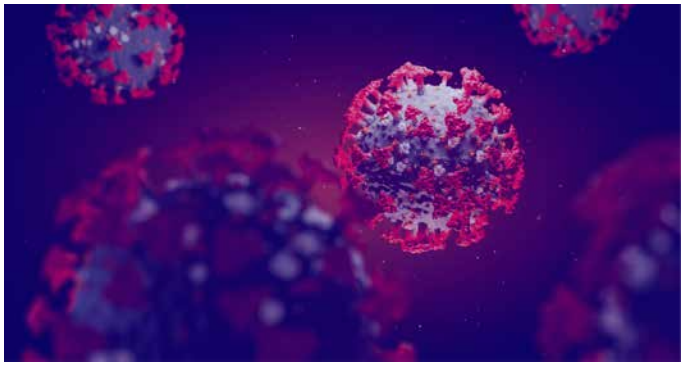
There was more “breathing room” at the Oxford site to try new equipment and processes which, if successful, could be deployed to the main production lab in Southampton. The initial focus was on R&D, but with production capability for projects that could not be done in Southampton for various reasons, to provide redundancy, and also future growth capability.

2020–Present

COVID-19 pandemic



In 2020, there was shift in customer enquiries towards oligonucleotide primers and probes for COVID-19 diagnostics. Customers old and new, manufacturing testing kits for the national Test and Trace programme, approached ATDBio with the promise of very large orders (in the range 10-100x the scale of the largest previous orders).

In order to meet this demand, ATDBio’s Oxford R&D laboratory was repurposed as a production facility, with significant investment (~£0.5 M) in new equipment for oligonucleotide synthesis and purification, as well as new staff. The change in focus also required a change in business model: with relatively simple oligos, but on a very much larger scale, came smaller margins.

As of early 2021, ATDBio has 10 employees at its original production site at the University of Southampton (~2000 sq. ft), including all of the initial employees, and another 10 FTEs at its Oxford Science Park site (~3500 sq. ft). Demand for oligos for COVID-19 testing is extremely high, and other non-COVID-19 work has resumed, with several large orders from customers who had scaled back their operations in early 2020. The early months of 2021 are set to be the most profitable in the company’s history. With the need for surveillance, monitoring the efficacy of vaccines and the evolution of the virus (e.g. variants), as well as future preparedness, the team doesn’t anticipate orders for COVID-19 oligos dissipating in the immediate future. But, when the virus is under control, the investment that ATDBio has made in equipment for large-scale synthesis will put it in a perfect position to tackle challenges in other areas, in particular therapeutic oligos (which are taking off rapidly after the approval e.g. by the US FDA of several oligonucleotide-based drugs in recent years, and which are needed in very large quantities) and single-cell sequencing, and work on this is in progress. Both labs are close to capacity, and the management team is considering further expansion in the form of a larger custom-designed facility that would allow further expansion, to enable oligonucleotide synthesis on an even larger scale.

In quarter 4 2021 ATDBio was acquired by Biotage, bringing highly specialised expertise in oligonucleotide synthesis into the Biotage portfolio of drug discovery tools and capabilities. The ATDBio team now look forward to continuing their cutting-edge work as part of the Biotage family.

atdbio now part of Biotage®

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