



TOUHLIGHT

## Case Study

### Synthetic DNA shaping the future of biomanufacturing

Touchlight is a biotechnology company bringing DNA production into the future with its proprietary synthetic DNA vector, doggybone DNA (dbDNA™). By moving beyond the constraints of biological processes, this innovative approach allows the company to produce high-purity DNA at greater scale and speed, meeting the growing demand for personalised medicines. James Johnson, Head of Maintenance and Calibration at Touchlight, oversees the integration of lab equipment, ensuring the success of the company's GMP (good manufacturing practice) facilities and production processes.



# Haier Biomedical

Intelligent Protection of Life Science

## TOUHLIGHT NEEDS

- Robust, reliable biosafety cabinets and cold storage for GMP labs
- Flexible lab equipment that can be adapted to specific needs
- Advanced temperature monitoring system
- Responsive, knowledgeable service and maintenance support
- Supplier that supports rapid expansion and global growth plans
- Energy-efficient solutions that align with sustainability goals

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*James Johnson, Head of Maintenance and Calibration*

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## Synthetic DNA shaping the future of biomanufacturing

### Going beyond traditional DNA production

Traditional DNA production methods – based on bacterial fermentation in *E. coli* – are often slow, resource-intensive and limited in scalability. Touchlight has addressed these challenges by developing a biosynthetic approach to DNA manufacture, using its proprietary dbDNA technology. This method produces linear, double-stranded, covalently closed DNA constructs that eliminate the need for bacterial sequences, including antibiotic resistance genes. Using a benchtop process instead of large-scale fermentation allows Touchlight to produce DNA in weeks, rather than months, with higher purity and the ability to accommodate a wide range of sequence designs. This enables the company to efficiently supply high-quality DNA to the genetic medicine sector, supporting the development of advanced treatments such as vaccines and cell and gene therapies. James Johnson explained: “Our DNA is already being used in human and animal studies, including vaccines for fish farming that combat genetic diseases in salmon, and collaborations with big pharma companies working on vaccines and gene therapies.”

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### Fully equipped by Haier Biomedical

Touchlight’s GMP facility in Hampton, UK, makes extensive use of Haier Biomedical equipment with more than 80 pieces of equipment including biosafety cabinets, ultra-low temperature freezers, fridges and freezers alongside a comprehensive temperature monitoring system. These refrigeration units are crucial for storing high-value materials such as DNA, enzymes and temperature-sensitive reagents, supporting

every step of Touchlight’s synthetic DNA production process.

**“The company’s willingness to customise equipment to fit our needs – like adapting freezers with extra shelving – is invaluable. Plus, having a single point of contact for maintenance and service across all of our equipment – both Haier Biomedical and third-party devices – makes it easy to keep everything running smoothly.”**

The facility’s temperature monitoring system incorporates a network of 240 individual loggers, helping to maintain tight control of the facility’s cold storage to ensure product security and GMP compliance. “The temperature monitoring system has been a game changer for us; it gives us full visibility and control, and the alerts have already helped us to prevent issues that could have led to product loss. Haier Biomedical took on board our feedback, and even built it into the next software update, which shows how seriously the company takes the partnership.”



### Partnering for growth

Touchlight's expansion and transition to GMP production required equipment that was not only reliable and easy to maintain, but also compliant with strict regulatory standards. Haier Biomedical stood out thanks to its reputation for robust, energy-efficient cold storage and lab equipment, as well as its responsiveness to feedback and customisation needs. "We chose Haier Biomedical because the company offered reliable products that fit our growth plans and could support our rigorous GMP environment," James explained. "Its equipment integrates well with our lab processes, and helps us to maintain the highest quality standards."

**"It's a real partnership," James added. "Haier Biomedical's engineers know our site, and they're always available to help us whenever we have a question or need support, which is crucial for a fast-growing company like ours. They've also been really responsive when we've suggested improvements, and have taken our feedback on board for their next software update. As we expand internationally, I see our involvement with Haier Biomedical growing too, because its global reach makes it easy to replicate our labs abroad, helping us to maintain consistency wherever we go."**

### PROJECT OUTCOMES

- Improved GMP compliance through temperature control and monitoring
- Streamlined maintenance with a single point of contact
- Customised lab solutions tailored to Touchlight's specific workflows
- Ongoing collaboration with Haier Biomedical engineers and continuous improvement through feedback



View our products here:



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