

ISSUE NO. 2/2026

ACCELERATING BIOLOGICAL INNOVATION WITH AUTOMATION IN THE AGE OF AI.

Tecan Journal article.

Today, the life sciences are entering an exciting new era—one in which artificial intelligence (AI) is poised to transform data analysis, revealing novel insights and relationships within complex datasets. This evolution holds the promise of accelerating the discovery of new therapies and driving significant advances in healthcare and nutrition.

To fully realize the potential of this AI-driven future, the scientific community must address several key challenges. While AI excels at uncovering patterns in data, its effectiveness is limited by the scope and diversity of existing biological datasets, which have historically been derived from a narrow range of species and geographic locations. Overcoming this limitation requires a fundamental shift in efficiency by utilizing novel NGS technologies that can support a dramatic increase in data volume, thus providing AI models with the comprehensive information they need for meaningful analysis.

The imperative of “quality in, quality out” underscores the importance of not only producing large volumes of data but also ensuring that data quality meets the highest standards. Achieving such high-quality data demands strict adherence to internationally recognized quality practices and standards. Automation of critical laboratory workflows is essential, as only automation can deliver the necessary throughput without compromising data integrity.

BaseClear B.V., a pioneer in DNA sequencing services in Europe, was established in 1993 with the vision of making advanced sequencing technologies accessible to researchers and innovators. Over the past three decades, BaseClear has continually expanded its capabilities, evolving from a sequencing provider into a trusted partner for genomics and quality solutions across the biotechnology, biopharmaceutical, food, feed, industrial, environmental, and academic sectors worldwide.

Pascal Bus, Senior Manager Scientific Operations at BaseClear, shares: “As a Contract Research Organization with around 60-70 employees at a single site, we offer clients the advantage of streamlined communication within a focused organization, while also providing specialized expertise for each of our services. This enables us to tailor our solutions precisely to our customers’ needs.”



From left to right: Pascal Bus PhD, Sr Manager Scientific Operations; Wouter Veneman PhD, Ultima Sequencing Project Lead; Efi Gkiata, Technical Developer

Since early 2025, Tecan has been supporting BaseClear in automating its key genomic workflows. The partnership began as BaseClear sought a new automation provider and also coincided with BaseClear’s expanding collaboration with the AI company Basecamp Research and their ambitious “Trillion Gene Atlas” initiative. This initiative seeks to explore genomic diversity on an unprecedented scale through a global network of leading partners to fuel the development of AI-driven therapeutics.

“In spring 2026, we announced the signing of a contract to install the Ultima Genomics UG200™ high-throughput sequencer to support the Trillion Gene Atlas and other projects,” Pascal continues. “This platform can sequence over 60,000 human genomes per year at 30x coverage, representing a significant leap forward in our capabilities.”

Such powerful sequencing capacity at the end of the workflow must be matched by robust solutions at the front end and this is exactly where Tecan contributes.

“Currently, we operate two Fluent® platforms, a DreamPrep® NGS for NGS library preparation, and a Fluent® 480 for qPCR setup. Looking ahead, we aim to automate additional processes for higher throughput such as pooling and nucleic acid extraction.”



Pascal highlights the value of Tecan’s solutions and support: “We require a high-throughput liquid handling platform that easily adapts to new protocols and reliably delivers high-quality libraries across a wide range of methods. The optimized DreamPrep® NGS configuration delivers on these needs through its extensive library of qualified NGS methods.”

Expert support is equally important: “Before Tecan, we struggled to get adequate support for implementing applications. Tecan’s NGS enablement team of experts helped us get up and running quickly with scripting support, and they continue to provide prompt resolution of any issues.”

He adds: “With biopharma becoming an increasingly important focus for us, aspects such as documentation, traceability, and LIMS connectivity are critical. We are ISO 10725 and ISO/IEC 27001

certified and operate under GMP conditions, so it is essential to work with partners who understand our requirements and help us fulfill our commitments to customers. From the outset, our collaboration with Tecan has been outstanding.”

As the pace of innovation in genomics and data-driven research continues to accelerate, partnerships like that between BaseClear and Tecan are essential to unlocking new possibilities. By combining BaseClear’s decades of expertise with Tecan’s advanced automation portfolio and experience, scientists are empowered to generate high-quality data at scale, laying the foundation for breakthroughs in healthcare, nutrition, and beyond. Together, both companies are shaping the future of life sciences, enabling discoveries that will benefit society for generations to come.

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