Media & Investor Release

Roche unveils a new class of next-generation sequencing with its novel sequencing by expansion technology

- **Roche's innovative sequencing by expansion (SBX) technology represents a leap forward in next-generation sequencing (NGS), which is playing a vital role in decoding complex diseases like cancer, immune disorders and neurodegenerative conditions**
- **Combined with an innovative, high throughput sensor module, SBX uses expanded synthetic molecules to determine the DNA sequence of a target molecule, creating an ultra-rapid, scalable and flexible technology**
- **Reducing the time from sample to genome from days to hours, this novel approach could significantly speed up genomic research, as well as translational and clinical applications in the years to come**

Basel, 20 February 2025 - Roche (SIX: RO, ROG; OTCQX: RHHBY) unveiled today its proprietary, breakthrough sequencing by expansion (SBX) technology, establishing a new category of next-generation sequencing. SBX chemistry, combined with an innovative sensor module, offers ultra-rapid, high-throughput sequencing that is both flexible and scalable for a broad range of applications.

Next-generation sequencing provides detailed insights into genetics, genomics and cell biology. It has already improved our understanding of gene functions and interaction, and is critical to our ability to decode complex diseases such cancer, immune disorders, and neurodegenerative conditions, where hundreds or even thousands of genes impact disease progression.

“The science behind SBX technology represents a significant breakthrough that addresses the limitations of existing sequencing solutions,” states Matt Sause, CEO of Roche Diagnostics. “By integrating and enhancing the two technologies, Roche's SBX has created a differentiated approach, offering unparalleled speed, efficiency and flexibility. The speed and accuracy of SBX has the potential to revolutionise the use of sequencing in research and healthcare.”

SBX is a novel sequencing approach which uses a sophisticated biochemical process to encode the sequence of a target nucleic acid molecule (DNA or RNA) into a measurable surrogate polymer called an Xpandomer. Xpandomers, which are fifty times longer than the original molecule, encode the sequence information into high signal-to-noise reporters, meaning they provide clear signals with minimal background noise. This enables highly accurate single-molecule nanopore sequencing using a Complementary Metal Oxide Semiconductor (CMOS)-based sensor module with parallel processing capabilities, offering speed and flexibility beyond that of other sequencing technologies.

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“Solving the signal-to-noise challenge is a key efficiency driver for the technology. With this capability we can flexibly operate across a range of throughput scales using the same sequencing system, which provides a significant advantage to users,” said Mark Kokoris, Head of Roche's SBX Technology.

The ability of SBX technology to provide ultra-rapid, high-throughput, flexible and scalable sequencing lends itself to a broad range of projects and applications. This technology will enable researchers to make significant discoveries that enhance our understanding of diseases and their treatment, with the potential to drive greater adoption in the clinical lab setting in the future.

About Sequencing by Expansion (SBX) technology

Roche's groundbreaking next-generation sequencing technology is designed to overcome the limitations of traditional sequencing methods. As well as high accuracy, it also offers an unparalleled combination of flexibility and speed, making it a versatile tool for a wide range of genomic applications.

One of the key benefits of SBX technology is its scalability. The chemistry is coupled with an advanced, high-throughput CMOS sensor module that enables ultra-rapid, real-time base calls and analysis. This module is designed to process numerous samples simultaneously, creating a highly scalable and flexible architecture for cost-efficient sequencing across different project sizes, from small-scale studies to large projects involving thousands of samples.

This versatility makes SBX technology suitable for a variety of applications, including whole genome sequencing, whole exome sequencing, and RNA sequencing. As a result, it holds promise not only for research laboratories but also eventually for clinical settings where detailed genomic insights are crucial. With SBX technology, researchers can meet new and evolving research demands efficiently, paving the way for significant advances in our understanding of genetics and disease, ultimately contributing to better healthcare outcomes.

SBX chemistry was invented by Mark Kokoris and Robert McRuer who co-founded Stratos Genomics. Stratos Genomics was acquired by Roche in 2020. To find out more about Roche’s novel SBX technology, click here.

About Roche’s Sequencing Portfolio

Roche has been committed to providing next-generation sequencing library prep solutions and application support for sequencing for several years. Today, next-generation sequencing solutions from Roche play an important role in the sequencing ecosystem. Our KAPA sample preparation products offer high-performance DNA, RNA library prep and target enrichment solutions for a variety of applications. Additionally, we offer the AVENIO Edge system that provides a true walk-away automated solution for many of our KAPA kits. This system does not require advanced programming skills and comes with ready-to-use kits and protocols. Our

AVENIO assays offer robust solutions for oncology, including the recent approval of the AVENIO Tumor Tissue CGP Automated Kit, a collaboration between Roche and Foundation Medicine, two leaders in oncology.

About Roche

Founded in 1896 in Basel, Switzerland, as one of the first industrial manufacturers of branded medicines, Roche has grown into the world's largest biotechnology company and the global leader in in-vitro diagnostics. The company pursues scientific excellence to discover and develop medicines and diagnostics for improving and saving the lives of people around the world. We are a pioneer in personalised healthcare and want to further transform how healthcare is delivered to have an even greater impact. To provide the best care for each person we partner with many stakeholders and combine our strengths in Diagnostics and Pharma with data insights from the clinical practice.

For over 125 years, sustainability has been an integral part of Roche's business. As a science-driven company, our greatest contribution to society is developing innovative medicines and diagnostics that help people live healthier lives. Roche is committed to the Science Based Targets initiative and the Sustainable Markets Initiative to achieve net zero by 2045.

Genentech, in the United States, is a wholly owned member of the Roche Group. Roche is the majority shareholder in Chugai Pharmaceutical, Japan.

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