Unlocking the secrets of biology to transform health

From Jacob Thaysen, PhD, Illumina chief executive officer and Niall Lennon, PhD, Broad Clinical Labs chair and chief scientific officer

WHAT AN INCREDIBLE WEEK for Illumina, for Broad Clinical Labs, for the entire sequencing industry at this year's AGBT (Advances in Genome Biology and Technology) conference, sharing our progress, ideas, and passion around making the most complex parts of biology simpler, more affordable, and more accessible.

In short, our strategy is working—and researchers and clinicians are feeling its impact.

These moments ground us—in the progress we've made and the potential ahead of us. The collaboration between Illumina and Broad goes back to the very beginnings of next-generation sequencing itself. We've spent decades catalyzing new spaces in sequencing and scaling the tools and solutions that move the entire community forward. Together, we've helped set the standard for whole-genome sequencing, fundamentally changing our understanding of biology. But the genome—the genetic makeup of the cell—is just the start of what biology can teach us. Seeing how genes interact in cells, how they are influenced by their environment, and how they change over time, are the next frontiers. This is the field of multiomics, where we're setting a new standard.

Until the very recent past, expanding visibility into these areas of cell and gene behavior has been incredibly challenging—the technologies have been limited, hard to use, or extremely expensive, constraining the ability of researchers to scale them for large studies. We're changing that—bringing together visionary approaches to discovery, leading platforms, tools and solutions, and our mutual decades of expertise to rapidly advance areas across multiomics.

We're streamlining and scaling single-cell technologies, like Perturb-seq—a sequencing method, developed in part by Broad, that combines CRISPR-based screening with single-cell RNA sequencing—to enable a 5 billion single-cell atlas ecosystem within three years. This is a big leap. Helping researchers easily and quickly generate studies with billions of samples rather than thousands will generate the data and insights to understand what causes disease, how it evolves, and what its weaknesses might be.

1. linkedin.com/company/illumina
2. linkedin.com/company/broad-clinical-labs
3. linkedin.com/company/advances-in-genome-biology-and-technology

We are also launching a groundbreaking Spatial Flagship Project—a program that will generate large-scale, coordinated data and offer early access to Illumina's spatial technology to external research groups through the Broad Institute's STP pipeline, fostering broader engagement and accelerating innovation. This technology brings the scale and sensitivity needed to understand complex tissue structures that affect disease, insights that are critical in identifying therapeutic targets.

We're giving researchers the scalable tools, innovations, and insights to unlock the power *beyond* the genome.

What do all these advances for research in multiomics mean to patients, to society?

They mean that we're bringing the potential of precision health into the present. We're helping illuminate the parts of biology that have been so elusive, the parts that will make it possible for you to know you have a disease before you even show a symptom. To use your precise biology to build a therapy that could slow its progression or prevent it altogether.

It means we're getting closer to cracking the code that lives in each of us, and using it to help us all live healthier, longer lives. The future of medicine starts here—with a deeper understanding of cells and their behavior—and we're building it together. ➤

Learn more in our recent press release at this link: illumina.com/company/news-center/press-releases/press-release-details.html?newsid=383b9322-6cef-4fdd-8099-05a6f6904872