

Life Sciences & Diagnostic Tools

AGBT 2024 Recap: More subdued tone, and competition is back in-focus

Industry Overview

No fireworks, mostly sparklers at AGBT 2024

Last week, we attended the annual Advances in Genome Biology & Technology (AGBT) conference, the top genomics industry meeting. AGBT was well-attended by both researchers and the investment community. Several new entrants have recently emerged to challenge the dominant genomics players, and AGBT provided an opportunity to collect feedback from early users, connect with key researchers, and separate ‘the promise’ from ‘the hype’. Overall, we see growing competition in both single-cell and bulk DNA sequencing, while spatial & in-situ markets have more differentiated products. Here, we discuss both notable industry trends and company-specific updates.

Budget uncertainty in both US and Europe

Beyond the latest technology developments, AGBT offered insights into market trends and customer sentiment. Relative to the last few years, AGBT tone was more subdued overall, and attendees were more cautious on budgets. While NIH (National Institutes of Health) funding has increased in recent years, inflation (e.g., higher overhead, product pricing, labor) has weighed on academic labs. We expect the FY24 NIH budget to be flattish ([see our note here](#)), but there is some risk of a cut. Elsewhere, Horizon Europe, a key funding program for academic research in the EU, cut its €95.5bn budget for 2024 by -2.2%, and tailwinds from last year’s stimulus in China have faded. As such, we think academic spending in genomics (in particular bulk sequencing) could be more subdued.

Sequencing demand elasticity is increasingly muted

Over the last decade, price elasticity in sequencing has been a key driver of the genomics market. As NGS vendors (i.e., ILMN) sharply reduced sequencing costs, an expanded customer base more than offsetting these price cuts with higher volumes. Over the past 2 years, new product launches by ILMN, Element (private) and Ultima (private) have pushed the cost of sequencing to new lows. While this is beneficial for scientists and clinical customers, we think the sudden drop in price has meaningfully outpaced underlying volume/demand growth in the market. While there is a large, untapped, long-term sequencing opportunity, existing markets are not as price-sensitive as they were in the past. We see the softer FY24 consumables outlook for ILMN as further evidence of limited demand elasticity in the near term ([See our ILMN recap here](#)).

Competition: Underappreciated in ‘23, even hotter in ‘24

AGBT (and other datapoints in recent weeks) served to highlight the progress made over the course of 2023 by various genomics vendors. We think the impact of new entrants on markets in 2023 went somewhat under the radar last year, and we see an even bigger impact in 2024. For example, in sequencing – ILMN provided updated figures on instrument placements. In 2022, ILMN placed 340 high-throughput systems, 1,210 mid-throughput, and 1,670 low-throughput. In 2023, while high-throughput fared better with 412 placements (due to NovaX launch), mid-throughput slipped to 885 units (-325 or -27% yoy), and low-throughput placements fell sharply to 920 units (-750 or -45% yoy).

(continued on p. 2)

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Additional Information

Competition (continued from front page)

ILMN also saw pull-through (consumables utilization, per instrument) drop in 2023 (vs 2022) in every instrument class – but while the drop in high-throughput can be partially explained by the NovaSeqX product launch, the decline in mid-throughput (from \$120, to \$97, or -20%) is more conspicuous.

We believe incremental share loss can help explain some of the drop-off from 2022 to 2023. In the past year, Element placed 112 Aviti mid-throughput systems, Ultima placed ~15 UG100 high-throughput systems, Singular Genomics (OMIC, not covered) shipped 19 mid-throughput G4 units, with others (PACB, ONT, not covered) also continuing to make headway into the market. All-in, we believe competitors to ILMN represented as much as 10-15% of new mid/high-throughput instrument placements in 2023, meaningfully higher than prior years. We also think 2024 may see even more progress from some of these platforms, as early users validate the new instruments, followed by publications, and workflows and manufacturing are optimized.

Will GEM-X help Chromium sales rebound for TXG in '24?

10x Genomics (TXG) unveiled a series of product improvements for its single-cell and spatial product lines. On the single-cell side, TXG launched the GEM-X, a new microfluidic chip design for the Chromium X and Chromium IX instruments. The technology offers several benefits, including higher sensitivity and better cell recovery, with double the cells per sample, with a ~ -10% reduction in price. Indeed, with this introduction TXG plans to eventually drive the cost of single-cell analysis down to ~\$100/sample (vs ~\$1700/sample) over time. Two versions of the assay, a Chromium Single Cell Gene Expression 3'v4 and Chromium Single Cell Immune Profiling 5'v3 will be launched, which is expected to ship in 1Q24. Given that Chromium demand has been sluggish for over a year, TXG management hope that lowering costs to this degree will help spur growth in single cell analysis. While the cost of TXG's reagents have frequently been cited as an impediment to expanding the single cell market, it remains to be seen whether the move is enough to jump-start the business (in the face of increasing competition in this market as well).

TXG also announced the launch of Visium HD kits, expected to ship during 1Q24. The existing Visium product offers capture areas with about 5,000 spots approximately 55µm across with 100 µm center-to-center distance. On the other hand, the new Visium HD will have 11 million spots (~2000x higher), 2 µm across, with no gaps. TXG showcased the sensitivity with the ability to measure 20K genes across the 11 million spots using the new Visium HD kits. We think this higher level of resolution will be incredibly attractive to customers, and early feedback at the conference was overwhelmingly positive.

The company also announced a series of planned product launches for Xenium. A multimodal cell segmentation capability will be available on Xenium in 1Q, which will allow for the capture of either multinucleated cells or cells lacking a nucleus. TXG also launched a 5K plex panel, allowing more comprehensive spatial analysis that will be available by mid-year. In 2H, launches of an integrated RNA-plus protein in-line multiplexed capability and flexible, 2,000 plex panels are expected.

In recent years, the single-cell market has become more competitive, with companies such as Fluent, Parse, and Scale Biosciences offering products at lower costs. As such, TXG's launch with the GEM-X is a step closer to experiments at lower cost, but whether it gains traction is unknown. Overall, the announcements from TXG were impressive, but the question remains whether spatial will outweigh the more competitive single-cell analysis. We maintain our Neutral rating on TXG and look forward to the company's 4Q earnings call, with the focus on '24 guide and Xenium/Chromium updates.

Ultima's \$100 sequencer: will 2024 're-launch' fare better?

Ultima Genomics (private) announced the full commercial rollout of its UG 100 high-throughput DNA sequencer, which has been in early access release until now. The list price of the UG 100 is \$1.5mn, with the ability to process up to 20,000 whole human genomes a year. The cost for sequencing whole human genomes is \$100 (or \$1/GB) on the UG 100, vs \$200 (or \$2/GB) using the new 25B flow cell on ILMN's NovaSeq X. The instrument can sequence two wafers continuously, with run times of 12 to 14 hours, each instrument can produce up to 50 TB of data per week.

During the early access program, feedback on the UG100 focused on workflow, sample/library prep, and accuracy (particularly in homopolymer regions – multiple consecutive identical base pairs – ie, AAAAA, TTTTT, CCCCC, GGGGG). Over the past year and a half, Ultima has made good progress in addressing this early customer feedback, and the UG100 system is a lot more “market ready” today. In addition, Ultima also launched the ppmSeq mode at AGBT, a workflow that provides raw error rates for base substitutions of 1 in 1 million or Q60 accuracy (well-above standard industry error rates of Q30).

At AGBT, Ultima also hosted several keynote talks and presentations focused on this platform. Stacey Gabriel of the BROAD Institute, Rahul Satija of the New York Genome Center, and Will Salerno from Regeneron discussed their experiences using the system. As more and more users provide feedback, and Ultima works out some of the early “kinks” in the system, we think demand in the market could steadily accelerate – even in the face of the NovaSeqX and the 25B flow-cell.

Element launches AVITI24 with multiomics capabilities

Element Biosciences (private) showcased several products including AVITI24, Cloudbreak (UltraQ and Freestyle), and Trinity. The company noted that it had received 160+ commercial orders of its AVITI benchtop sequencer (vs 22 a year ago) and expanded its install base to 112 instruments.

AVITI24, which will launch in the 2H24, was the most interesting development, as it allows the simultaneous analysis of DNA, RNA, and proteins from the same biological sample with a <24 hour turnaround time. Element also announced workflow improvements in its Cloudbreak Freestyle and Trinity products to simplify AVITI workflow. The Cloudbreak Freestyle sequencing kit (launching 1H24) eliminates the need for library conversion steps (a key time-and-workflow limiting factor) on the bench before sequencing on AVITI.

Element is also launching the Cloudbreak UltraQ kit in 1H24. It will be the first Q50 kit (99.99% accurate), which is 100x better than the industry standard. Finally, the Trinity, expected to launch in 3Q24 will have a dramatically simplified workflow with much lower library input and hands-on time needed. Overall, it is an exciting set of launches from Element, and with an install base of over 100 instruments, Element appears to be also rapidly expanding its market presence despite ILMN's strong entrenched position.

Price objective basis & risk

10x Genomics, Inc. (TXG, C-2-9, \$49.54)

Our PO of \$54 is based on an EV/Sales multiple of 8.5x our 2024E estimates, which is in-line with the company's genomics peer group median.

Upside risks to our PO are the faster than expected uptake of new products (esp.



Xenium) and single cell analysis methods, better than expected execution, a faster recovery in China, higher levels of R&D funding, and the acquisition of the company.

Downside risks to our PO are commercial, market, and execution risks related to Chromium and Xenium, increasing competition, and revenue volatility due to the often uncertain nature of academic and government R&D funding.

illumina, Inc. (ILMN, B-3-9, \$137.84)

Our \$105 price objective is based on a DCF analysis that assumes a WACC of approximately 9% and a terminal growth rate of 4%. We consider this justified given near-term questions on certain pockets of ILMN's business and related execution, as well as the company's market position and significant TAM. This PO is also equivalent to roughly 25x ILMN's core 2025 EPS (ie. excluding GRAIL), which is on the lower end of its historical P/E multiple, but is justified given poor performance in recent years.

Downside risks to our PO are lower demand elasticity as ILMN further lowers cost of sequencing, lost sales due to challenging macroeconomic conditions for key customer groups, weaker-than-expected academic funding, lower consumable pull-through, competition within the genetic analysis market, regulatory and reimbursement uncertainty in the clinical sequencing markets, acquisition related integration issues, growing concerns over data privacy, and slower-than-expected uptake of new products (esp. NovaSeqX).

Upside risks to our PO are a stronger than expected recovery in instrument placements and overall sequencing demand following near-term market volatility, strong uptake of NovaSeqX product cycle, increased spending by high-throughput customers, better clinical reimbursement/market penetration, cost cuts that drive meaningful margin expansion, and the acquisition of the company.

Analyst Certification

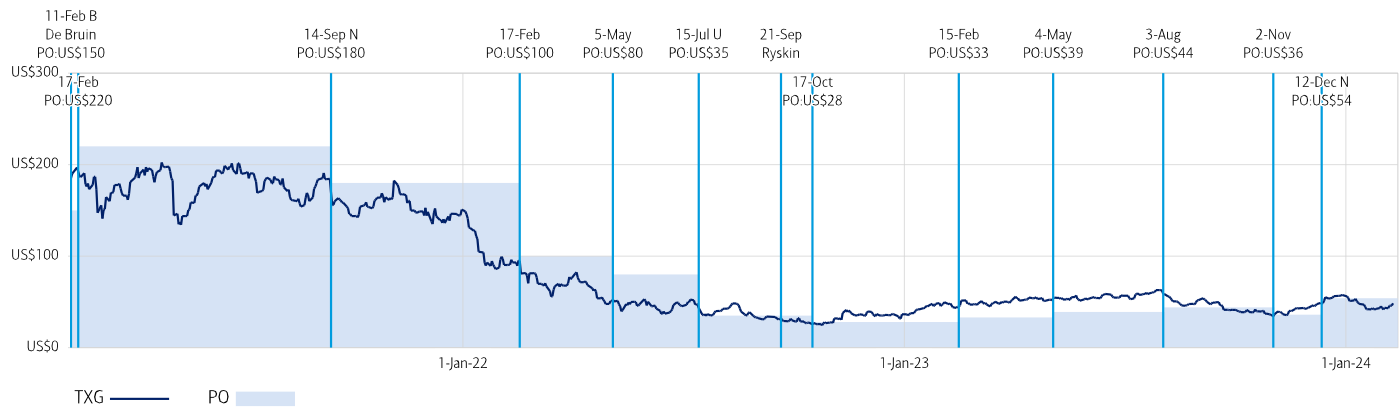
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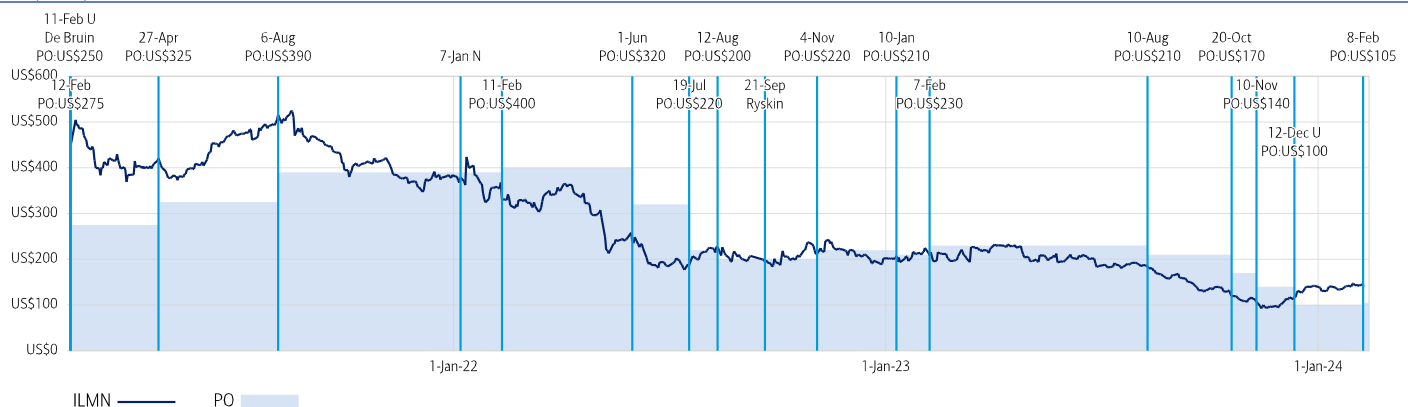
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10x Genomics (TXG) Price Chart

B: Buy, N: Neutral, U: Underperform, PO: Price Objective, NA: No longer valid, NR: No Rating

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Illumina (ILMN) Price Chart

B: Buy, N: Neutral, U: Underperform, PO: Price Objective, NA: No longer valid, NR: No Rating

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| Hold | 80 | 20.83% | Hold | 36 | 45.00% |
| Sell | 70 | 18.23% | Sell | 29 | 41.43% |

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|-------------------|-------|---------|--|-------|---------|
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| Hold | 832 | 23.54% | Hold | 454 | 54.57% |
| Sell | 807 | 22.84% | Sell | 383 | 47.46% |

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| Underperform | N/A | ≥ 20% |

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