



Illumina BioInsight Platform expands with new software to accelerate the path from sequencing to discovery

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DRAGEN Ultra, BioInsight Platform Workflow Orchestrator, and BioInsight Platform Learning Cohorts are now available in early access, incorporating new AI-driven approaches to analysis, automation, and discovery

The tools automate end-to-end informatics processes at scale and help customers build private data lakes to drive scientific and clinical research insights

SAN DIEGO, Oct. 21, 2026 /PRNewswire/ -- Illumina, Inc. (NASDAQ: ILMN) today introduced three early-access capabilities on its BioInsight Platform that help researchers move faster from sequencing data to discovery. BioInsight Platform Workflow Orchestrator enables laboratories to operate consistent, traceable sequencing and informatics operations at scale. DRAGEN Ultra extends genomic analysis beyond variant calling, using Illumina AI models and knowledge resources to prioritize candidate variants, and sort large numbers of research samples. BioInsight Platform Learning Cohorts, paired with the previously announced BioInsight Data, helps researchers investigate patterns across large genomic, multiomic, and phenotypic datasets, placing individual findings in their more informative biological and population context.

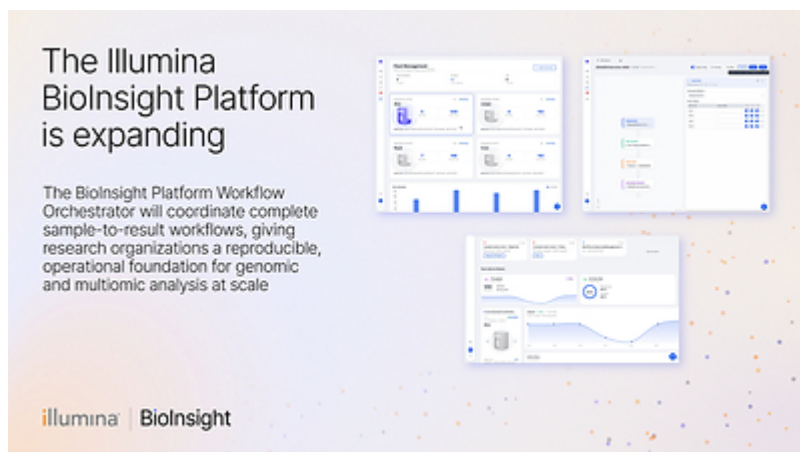
Together, the capabilities help research organizations operate consistent, efficient genomic workflows at scale, focus investigation on the samples and variants that matter, and place those findings in the context of larger genomic and multiomic populations.

"The promise of genomics depends on generating vast and complex data, then distilling that data into insights that advance discovery," said Rami Mehio, senior vice president and general manager of BioInsight at Illumina. "Researchers need consistent, scalable, reproducible workflows, AI that helps identify the samples and findings that matter most, and the ability to study those samples across increasingly large and diverse cohorts. We've put all our new development energy into new capabilities to make it easy to scale insight generation, so research organizations can focus on advancing the science rather than assembling and maintaining software."

The Illumina BioInsight Platform, which debuted last week, offers a suite of genomic and multiomics software tools and data sources. Researchers can choose the capabilities they need and link them together, designing workflows that best suit their science and adding capabilities as their programs grow.

BioInsight Platform Workflow Orchestrator enables connection to Illumina sequencers for automated, scaled genomics operations

As datasets grow and workflows become more complex, research organizations need consistent quality, reproducibility, and traceability at every stage of sequencing and analysis.



The new workflow orchestration software is designed to run each genomic analysis as a connected process, from sample tracking, through sequencer run planning, secondary analysis, quality control, and tertiary software for insight generation. A visual workflow builder allows customers to start from an Illumina authored template and configure specific parameters to reflect their individual lab innovations. Lab scientists define the workflow and the software executes it efficiently, consistently, and compliantly across tens of thousands of samples, enabling teams to scale operations without adding complexity.

In Workflow Orchestrator, each sample maintains a single identity across software tools, providing complete result lineage covering the inputs, software versions, settings, and quality metrics that produced them. This gives research organizations a

reproducible, audit-ready operational foundation for genomic analysis.

DRAGEN Ultra extends analysis beyond variant calling

For over a decade, DRAGEN has provided industry leading performance, accuracy, and capabilities in the field of genomic secondary analysis. The new DRAGEN Ultra capability extends genomic analysis beyond variant calling by combining Illumina genomic AI models and proprietary knowledge resources to help prioritize variants for further investigation, accelerating the path from variant identification to genomic insights. DRAGEN Ultra is available on the Illumina BioInsight Platform as well as customer premises, private clouds, and air-gapped environments.

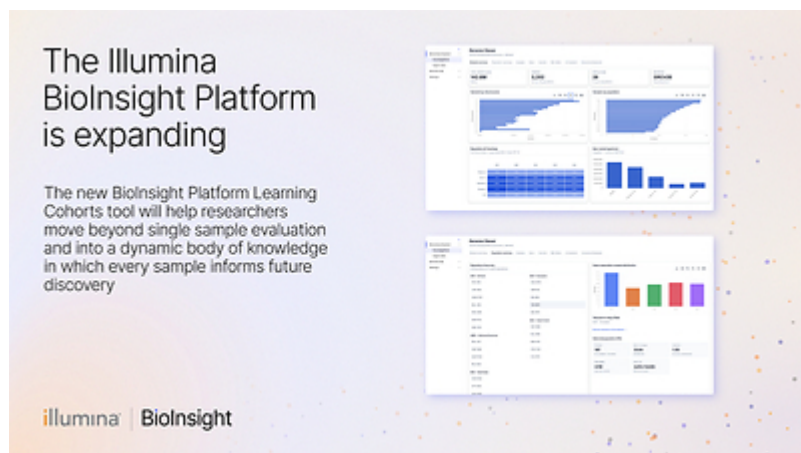


Now in early access, the technology is designed to support a range of research applications, including rare disease, population genomics, and multiomic studies. By integrating annotation and prioritization with variant calls, DRAGEN Ultra provides more complete insights for large scale projects.

DRAGEN Ultra will include dnaAI, a new variant prioritization model that predicts which variants are most likely to explain an observed phenotype. Developed by the BioInsight AI Lab, the new model was featured in a plenary session at ASHG, where Illumina revealed early research findings from the model. Applying dnaAI to large scale datasets resulted in an 8% increase in disease associations across unsolved cases. The model also ranked previously established disease-associated variants among its top four candidates in 99.4% of genomes analyzed. In addition to the new dnaAI feature, DRAGEN Ultra also draws on Illumina models designed to address distinct classes of biological variation, including PrimateAI-3D, PromoterAI, [and the newly announced SpliceAI2](#).

BioInsight Platform Learning Cohorts tool reveals patterns beyond the individual sample

The Learning Cohorts tool, also in early access, will help researchers move beyond single sample evaluation and into dynamic knowledge generation in which every sample informs future discovery. Researchers can explore genomic, multiomic, and associated phenotypic data across large private sample collections, compare individual observations with broader populations, and investigate associations that may not be visible within any one sample. The Learning Cohorts tool makes capabilities available to private researchers that were traditionally only available with large public cohorts.



Researchers can begin with a scientific question, identify relevant populations from available datasets, and dynamically build cohorts for further analysis. For example, a researcher investigating a rare variant can identify subjects sharing similar genomic features or phenotypes, compare outcomes across groups, and explore associations that may warrant further study. This approach supports a shift from executing analyses on predetermined groups to discovering and investigating populations at scale.

Previously announced BioInsight Data adds curated reference datasets that researchers can use to enrich institutional cohorts and place findings in broader biological and population contexts. Together, the Learning Cohorts tool and BioInsight Data allow researchers to examine patterns across datasets, generate new hypotheses, and build research resources that become more informative as additional genomic, multiomic, and phenotypic data are added.

The three new applications are available for early access customers via the Illumina BioInsight Platform.

Illumina introduced the capabilities at the annual meeting of the American Society of Human Genetics (ASHG) in Montréal.

ASHG attendees can learn more about DRAGEN Ultra, BioInsight Workflow Orchestrator, and Learning Cohorts at Illumina booth #701 and during Illumina's Industry Education [session](#) on Friday, Oct 23, 12:15 PM–1:15 PM (ET) in Room 513 ABC. Learn more about the Illumina BioInsight Platform [here](#).

About Illumina

Illumina is improving human health by unlocking the power of the genome. Our focus on innovation has established us as a global leader in DNA sequencing and array-based technologies, serving customers in the research, clinical, and applied markets. Our products are used for applications in the life sciences, oncology, reproductive health, agriculture, and other emerging segments. To learn more, visit illumina.com and connect with us on [X](#), [Facebook](#), [LinkedIn](#), [Instagram](#), [TikTok](#), and [YouTube](#).

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