

Illumina Laboratory Information Management System (LIMS) for Microarray Processing

Illumina Microarray LIMS delivers exceptional management and tracking to ensure high-quality data, efficient data acquisition, and significant savings in time and lab resources.

Highlights

- **Integrated System**
Quality control from DNA input to data analysis
- **Optimized Library Prep**
Requeue samples using real-time quality metrics
- **Positive Sample Tracking**
Minimize sample mix-ups, reduce lab errors, and increase confidence and efficiency
- **Rapid Scaling of Throughput**
Increase sample throughput with minimal effort

Introduction

The Illumina LIMS for microarray processing (Illumina Microarray LIMS) provides positive sample tracking, project and data management, lab workflow management, and reporting for Infinium™, Infinium iSelect™, and Infinium XT genotyping products. Using advanced automation and precise robotic control, the Illumina Microarray LIMS enforces all aspects of microarray processing, including component verification and accurate sample tracking throughout the run (Figure 1). By managing time-consuming and error-prone sample/data handling, this integrated solution ensures reliable, high-quality data output.

Automation Improves Accuracy

Regardless of study size, one user error can significantly impact accuracy. By orchestrating the sample processing run from input to analysis, Illumina Microarray LIMS greatly reduces hands-on steps, minimizing and possibly eliminating user errors, including incorrect sample transfer, accidental use of the wrong reagents, or protocol mistakes.

Scalability by Design

Illumina Microarray LIMS is a highly scalable system designed to accommodate needs as a laboratory grows. A normalized schema enables query maintenance and insertion performance. Using Windows Server 2012R2 and Microsoft SQL Server 2014 background config, Illumina Microarray LIMS provides an optimal enterprise-level solution for tracking samples and reporting. Storage capacity is easily managed by enabling system administrators to define locations for new file repositories while the system maintains links to existing files.

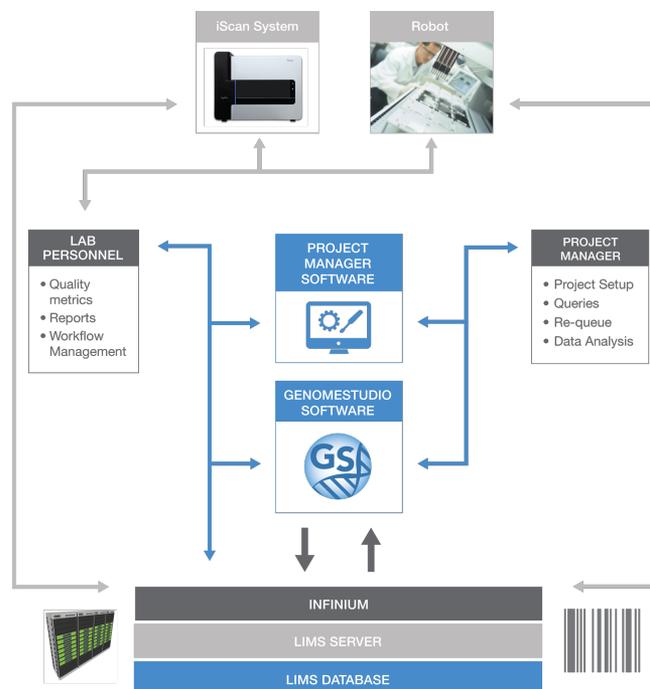


Figure 1: Illumina Microarray LIMS Architecture—Illumina Microarray LIMS enables positive sample tracking, integrated project management, and complete system integration from DNA input to data output and analysis.

Backups are facilitated by separating write-once files from frequently changing analysis and report files. Automatic project archiving saves time and avoids confusion.

Flexibility

Illumina Microarray LIMS supports Infinium assays and can easily be switched to control runs from any application. Modules supporting future applications will be made readily available, making it easy to continue with automation and minimizing the need for internal IT resources.

For data control, Illumina Microarray LIMS supports numerous user-defined parameters. Users simply select the project and timeframe of interest to be analyzed. The Illumina Microarray LIMS image server automatically loads image, decoding, intensity, cluster, and bead pool information into GenomeStudio® Software, ensuring that all samples are accounted for during analysis.

Configuration changes via the administrator's interface provide support for other network- or direct-attached file systems. Backup and archive directories are also fully configurable. File name pointers to the raw analytical data are stored in the database, while processed data are stored in GenomeStudio Software workspaces and reports. User-defined downstream processes and databases are integrated instantly upon importing data from Illumina standard reports. Alternately, Illumina Microarray LIMS can generate custom reports.

Ease of Use

The Illumina Microarray LIMS interface enables project managers to enter experimental and control samples into the system easily using familiar sample sheet definitions. After a project is defined, the assigned samples are automatically queued for processing in batches matching Illumina reagent and BeadChip packages. This batching system automatically communicates that samples are ready for processing without additional intervention from the project manager. Integrated data collection (BeadScan) and analysis (GenomeStudio Software) programs provide autocall functionality. First-run samples can be analyzed while the remainder of the samples are processed to decrease the time to data analysis.

Ease of Administration

Whether processing thousands or billions of genotypes, database administration can be challenging. To help meet this imposing need, Illumina Microarray LIMS configures data storage using a standard file system that can track data locations in the database. This reduces the need for additional database administration overhead and supports easier integration of genotype data with user-defined downstream processes and databases. The Illumina Microarray LIMS data repository also simplifies back up, recovery, and archiving processes.

Comprehensive System

Illumina Microarray LIMS is a comprehensive system that includes software, hardware, training, and ongoing support from the Illumina technical support team.

Learn More

To learn more about Illumina Microarray LIMS, visit www.illumina.com/techniques/microarrays/array-data-analysis-experimental-design/lims.html

Ordering Information

Product	Catalog No.
Illumina LIMS Starter Bundle	20018976
Illumina LIMS Standard Throughput Upgrade	20018977
Illumina LIMS High Throughput Upgrade	20015563