A Comprehensive Laboratory Integration & Automation Platform

LabVia™ is LabLynx's exclusive state-of-the-art integration and automation platform purpose-built for laboratory environments. It provides a centralized solution for managing the complex web of systems, instruments, and software that modern laboratories depend upon.

As laboratories continue to adopt digital transformation strategies, the demand for seamless, intelligent, and scalable connectivity has never been higher. LabVia responds to this demand with a versatile, secure, and intelligent architecture that supports not only traditional integration tasks but also leverages advanced AI and machine learning capabilities to drive operational efficiency and scientific insight.

CORE COMPONENTS

There are three main components of the LabVia connectivity and automation platform:

1. **LabVia Hub**
2. **LabVia Cloud**
3. **LabVia.ai AI and Machine Learning Engine**

1. LabVia Hub

The LabVia Hub acts as a local nerve center within the laboratory infrastructure (on-premises) as needed. It is a hardware/software hybrid that communicates directly with laboratory instruments, software applications, and edge devices. Its responsibilities include protocol translation, data normalization, and secure data transmission to upstream systems such as the LIMS. It ensures that instruments speak a common language, and that their outputs are validated and routed to the appropriate data destinations in real time.

Features include:

- **Central Integration Point:** Acts as a nexus for integrating instruments, devices, and software applications.
- **Hardware/Software Package:** A compact unit installed onsite, supporting serial, USB, and network connections.
- **Guided Setup:** Includes full installation instructions, with options for remote or onsite assistance by LabLynx professionals.
- **Data Management:** Manages data routing to and from lab instruments and systems.

2. LabVia Cloud

Hosted on LabLynx's robust and secure sciCloud.net® platform, the LabVia Cloud complements the Hub by providing scalable, real-time integration management and orchestration. It enables remote access, centralized updates, and powerful system-wide visibility. LabVia Cloud supports elastic scalability, ensuring laboratories can onboard new instruments, workflows, and users as needs evolve without disrupting core operations.

LabVia Cloud features:

- **Cloud-Based Management:** Hosted on LabLynx's Infrastructure as a Service (IaaS), providing real-time, secure integration management.
- **Scalability:** Easily accommodates additional integrations as needed.
- **Maintenance & Support:** Includes maintenance, support, and warranty under annual agreements.

3. LabVia.ai AI and Machine Learning Engine

Put the power of artificial intelligence to work in managing your lab data where it makes sense. AI is deeply embedded into LabVia's operational core. Unlike many platforms that treat AI as an add-on, LabVia's architecture is natively designed to incorporate AI-driven insights and automation.

This includes:

- **Diagnosis and Predictive Analytics:** Use our sophisticated scienceGPT educated Large Language Model (LLM) AI systems to quickly and comprehensively derive diagnoses and make recommendations in a fraction of the time it would take experts, allowing your valuable human capital to be allocated to select, targeted challenges. Learn from historical data patterns to forecast equipment failures, resource bottlenecks, or compliance risks.

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LabVia.ai AI and Machine Learning Engine, cont.

- **Automated Anomaly Detection:** Identify outliers in instrument outputs or workflow patterns, prompting quality checks or automated alerts.
- **Intelligent Task Scheduling:** Dynamically prioritize tasks based on real-time resource availability, historical performance, and projected deadlines.
- **Smart Resource Allocation:** Automatically balance workloads across personnel and instrumentation to maximize throughput.
- **Compliance Automation:** Ensure every step of a lab's workflow aligns with regulatory guidelines, using rule-based engines and natural language processing.
- **Variety of Applications:** Use cases include everything from Tribology/Used Oil Analysis and reporting to virtually any type of research, CRO, even clinical diagnostics. And the list is growing rapidly
- **Think Out of the Box:** We'll help you reimagine your workflows, inventory and overall data management and reporting to meet challenges in ways you may never have thought possible.
- **Cost-Effective:** LabVia.ai implementation connects and improves your workflows at a fraction of the time and cost of ordinary methods.

labvia™ Core Capabilities

Comprehensive Integration

LabVia connects a wide range of systems, including:

- Scientific Data Management Systems (SDMS)
- Laboratory Information Management Systems (LIMS/LIS)
- Laboratory Execution Systems (LES)
- Electronic Laboratory Notebook (ELN)
- Manufacturing Execution Systems (MES)
- Product Lifecycle Management (PLM)
- Enterprise Resource Planning (ERP)
- Electronic Medical Records (EMR)
- Environmental Monitoring Devices
- Field and Mobile Devices
- Regulatory and Reporting Agencies (e.g., FDA, EPA)
- Seed-to-Sale Tracking Systems (e.g., METRC)

IoT Compatibility

LabVia integrates with Internet of Things (IoT) devices for enhanced data collection and monitoring.

AI Capabilities in Action

LabVia's AI engine does more than automate; it augments scientific inquiry.

For instance, in a high-throughput sequencing lab, LabVia can:

- Forecast sample throughput and recommend batching strategies to minimize reagent use.
- Detect unusual gene expression patterns across studies, prompting early discovery alerts.
- Allocate technicians to critical instruments during predicted peak periods.

In a compliance-heavy pharmaceutical environment, LabVia might:

- Scan lab notes and flagged deviations for regulatory risks.
- Schedule calibration procedures based on AI-predicted drift timelines.
- Auto-generate sections of regulatory submissions based on lab output patterns.

Use Cases

LabVia's AI-enhanced use cases span across many types of laboratories in multiple industries. It is designed to be domain-agnostic yet context-aware. Its core engine adapts to the unique challenges of each industry and laboratory type.

Examples include:

✔ **Clinical Diagnostics**
- Manage high-volume specimen testing
- Automate result validation and flagging
- Predict reagent shortages based on usage trends

✔ **Pharmaceuticals & Biotech**
- Integrate with R&D, manufacturing, and regulatory databases
- Automate batch record management
- Use AI to identify early indicators of formulation failure

✔ **Environmental Testing**
- Handle diverse sample types and field data
- Integrate with GIS and meteorological data
- Predict contamination spread through data modeling

✔ **Forensic Labs**
- Maintain chain-of-custody integrity
- Link case management with LIMS data
- Use AI to detect data inconsistencies or tampering

✔ **Food & Beverage**
- Monitor and optimize shelf life studies
- Automate pathogen testing workflows
- Generate compliance-ready reports for global markets

✔ **Academic & Government Research**
- Enable multi-institutional data collaboration
- Model experimental data trends with AI
- Automate grant reporting and publication support

Integration & Automation Features

LabVia is not just a toolset, but a comprehensive integration fabric for the modern lab. Its features enable plug-and-play connectivity and smart automation across multiple platforms.

- **Instrument Integration:** Whether legacy or modern, analytical or preparatory, LabVia supports connection and communication with nearly any laboratory instrument. Protocol libraries ensure rapid deployment.
- **Software Interoperability:** Seamlessly links ELNs, CDMSs, ERP systems, QA/QC tools, and more. LabVia acts as a universal translator between disparate software systems.
- **Automated Workflow Execution:** Define, trigger, and execute lab workflows with minimal manual input. LabVia ensures consistent adherence to SOPs.
- **Live Dashboards & Notifications:** Monitor instrument status, workflow execution, and compliance metrics through customizable dashboards.
- **Secure Data Pipelines:** All data flows are encrypted and auditable, meeting standards such as HIPAA, GLP, and 21 CFR Part 11. User authentication can be configured with advanced options like LDAP and SSO, standard with LabLynx OpenSocial.

Integration

...with LabLynx Ecosystem

LabVia seamlessly integrates with other LabLynx solutions, including:

ELabLiMS
Centralizes laboratory data management

OpenSocial
Enterprise Single Sign-on (SSO)
& Identity Access Management (IAM)

labDrive
Collaborative Scientific Data Management System (SDMS)

labVista
Provides analytics and business intelligence reporting

myLabCare
Offers client and physician portals for test ordering and result access

LiMShelp
Delivers support and training resources

Scalability

LabVia easily connects and automates your lab, from startup or modest throughput, to quickly and seamlessly increasing scope as you grow, even across multiple locations. ***Features include:***

- **Flexible Deployment:** Designed to support laboratories of all sizes, from small startups to global enterprises.
- **Extensibility Anytime:** Easily accommodates additional integrations for new instruments and software as needed.
- **Cloud or On-Premises:** Offers both cloud-based and on-premises hosting options to meet varying security requirements.

Benefits

The benefits LabVia brings to a lab are instant and significant.

- **Enhanced Data Accuracy:** Automated data capture minimizes transcription errors.
- **Improved Efficiency:** Streamlines workflows by automating data exchanges between systems.
- **Regulatory Compliance:** Facilitates compliance with standards such as HIPAA, GDPR, and ISO 27001. Its secure data exchange ensures that data exchanged between applications are encrypted and secure, protecting sensitive information.
- **Reduced Operational Costs:** Minimizes manual data handling and associated labor costs.

Conclusion

LabLynx LabVia is more than an integration tool. It is a comprehensive digital foundation for modern laboratories, uniting instruments, people, processes, and intelligence. Whether you're building a smart lab from the ground up or seeking to connect fragmented legacy systems, LabVia offers the power, flexibility, and intelligence to transform laboratory operations for the future.

GETTING STARTED

To explore how LabVia can enhance your laboratory's integration and automation capabilities, visit the LabVia product page or contact LabLynx at *sales@lablynx.com* for a personalized consultation.

TECHNICAL DATA IS SUBJECT TO CHANGE WITHOUT NOTICE.

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LabLynx, Inc. is a global provider of Laboratory Informatics Solutions for all types of laboratories. Our focus is on delivering lab data management solutions that fit your lab's technical, functional, business and scientific workflow requirements. For more information visit www.lablynx.com or email sales@lablynx.com or call 866-522-5969.