



*living*  
**laboratory**

*A Thriving Shimadzu Ecosystem*



## What is Shimadzu Living Laboratory?

Shimadzu Living Laboratory is the first AI-assisted automation laboratory that combines Shimadzu's leading hardware and all-encompassing software to create a single, central ecosystem that is future-proof for Analytical Transformation. Through continuous integration of the latest technologies, the Living Laboratory is a dynamic, adaptable, and ever-evolving ecosystem to meet the ever-changing market demands.



# Shimadzu Living Laboratory – Achieve Digital Transformation (DX) By Connecting Every Aspect Of The Laboratory Workflow

## 5 Elements of Shimadzu Living Laboratory





# 01 | Living Instruments™ With Advanced Technologies

Equipped with Shimadzu's proprietary Analytical Intelligence™, our Living Instruments™ offers automated support, self-monitoring, and diagnostic capabilities, as well as high-quality data acquisition for maximum productivity and reliability, whether for routine or demanding applications.

## GET A GLIMPSE INTO OUR LIVING INSTRUMENTS™



Advanced i-Series



Nexera Series



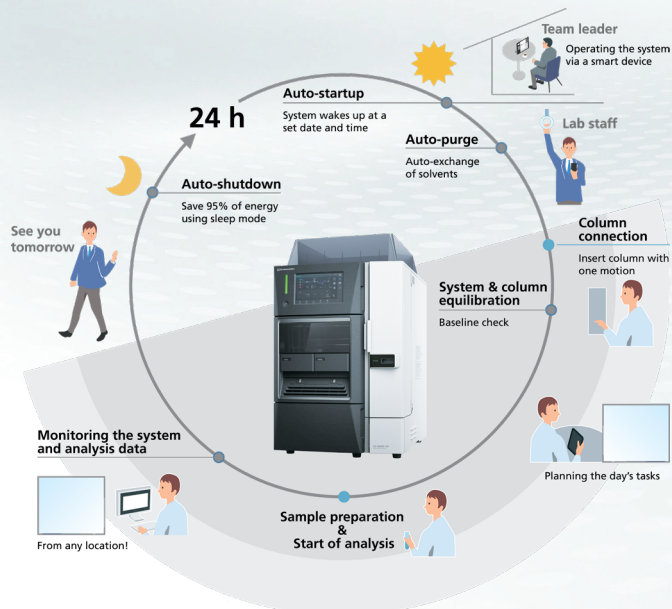
LCMS-2050



Nexis GC

and more...

## DX Sample Run With Living Instruments™



- Auto Start Up to Auto Shutdown**  
 360° Automated System Preparation (ASP) combined with Work-From-Anywhere (WFA) kit
- Advanced Real-Time Mobile Phase Monitoring**  
 Check the mobile phase volume in real-time from any location using smart devices
- Smart Column Protection With Flow Pilot For LC**  
 Consists of smart flow control for gradual flow rate increase to prevent column damage
- Method Scouting For LC Method Development**  
 Automates switching of up to 12 columns and 8 mobile phases for optimization
- Column Conditioning With Clean Pilot For GC**  
 Quick and efficient automatic conditioning to provide stable analytical results



# 02 | Living Algorithms For Powerful Data Analysis

The substantial amount of data generated during sample run can pose a challenge for data analysis. Shimadzu's Living Algorithms can streamline this process, simplifying what was once time-consuming into an efficient task that delivers reliable and robust results for researchers to yield actionable insights.

## DX Data Analysis With Living Algorithms

### Peakintelligence™

World-first algorithm incorporating AI assistance to search for chromatography peaks

### i-PDeA

Detects co-eluted peaks and small peaks concealed in a main peak

### LabSolutions Insight™

Automatically applies peak detection criteria to data and flags any deviations

### LabSolutions™ MD

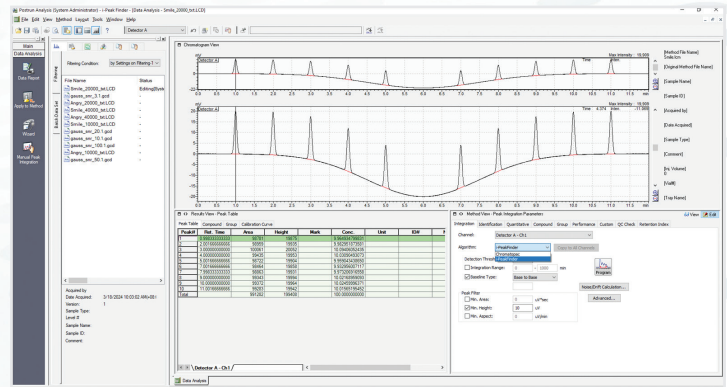
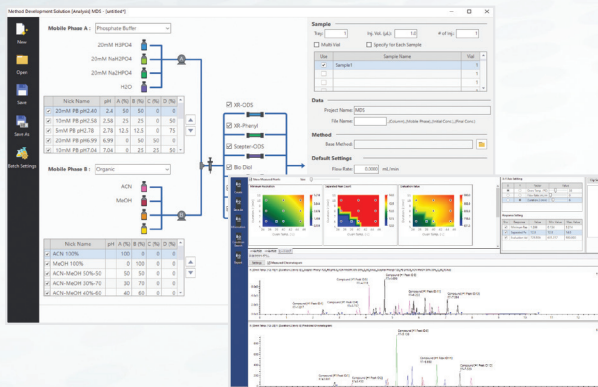
Automated method development using Analytical Quality by Design (AQbD) approach

### i-PeakFinder™

Automatic peak integration algorithm for faster data analysis

### Mass-it™

Automatically overlays mass information onto LC-UV or LC-PDA chromatogram





## 03 | Advanced Reporting Tool

Upon completion of data analysis, standardized data reporting is essential for proper documentation. Shimadzu's LabSolutions™ consists of an advanced reporting tool that allows users to easily prepare reports with combined data from multiple instruments. Furthermore, it also enables automated report generation and multi-data report creation, which ensures data integrity and compliance.

### DX Data Reporting With Shimadzu's LabSolutions™

#### Allows Multi-Instrument Data Registration

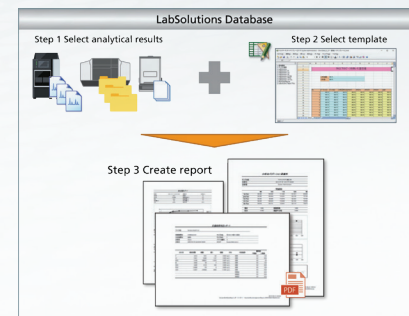
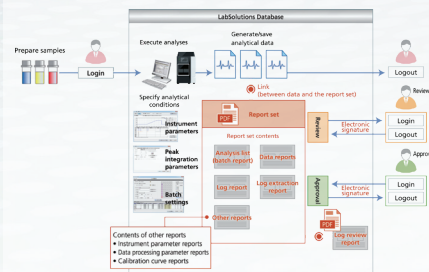
Centralized data collection from analytical instruments for integrated data management

#### Provides LabSolutions™ Data Integrity Report Set

Entire process from data acquisition to data log reviews can be managed electronically

#### Offers Multi-Data Report Creation

Eliminates the need to transcribe data, reduces the risk of errors, and prevents data alterations





AI is changing the way  
we live and work –

**SHIMADZU LIVING  
LABORATORY IS  
CHANGING THE WAY  
WE DO SCIENCE**





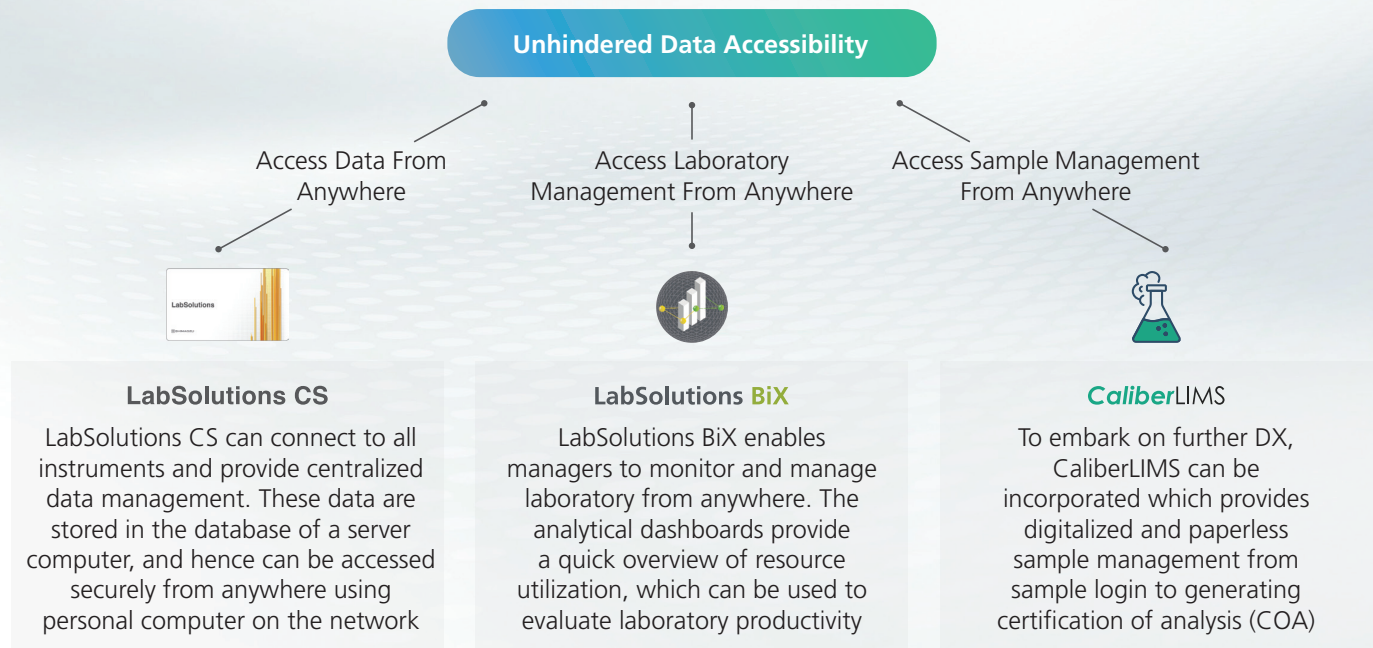
## 04 | Unhindered Data Accessibility To Work From Anywhere

Even with the latest technology and software available, if data cannot be accessed from outside the laboratory, we may remain confined to the lab for our day-to-day activities. Shimadzu offers multifaceted strategies consisting of LabSolutions CS, LabSolutions BiX, and CaliberLIMS to provide unhindered data accessibility and hence the ability to Work From Anywhere.

All of these software are:

- **Cloud And Citrix Compatible –**  
Can be integrated into cloud-based services; accessibility not restricted to specific hardware/software
- **Web-Based Platforms –**  
Can be easily accessed through a web browser; no need to install specific software

### DX Data and Laboratory Management With

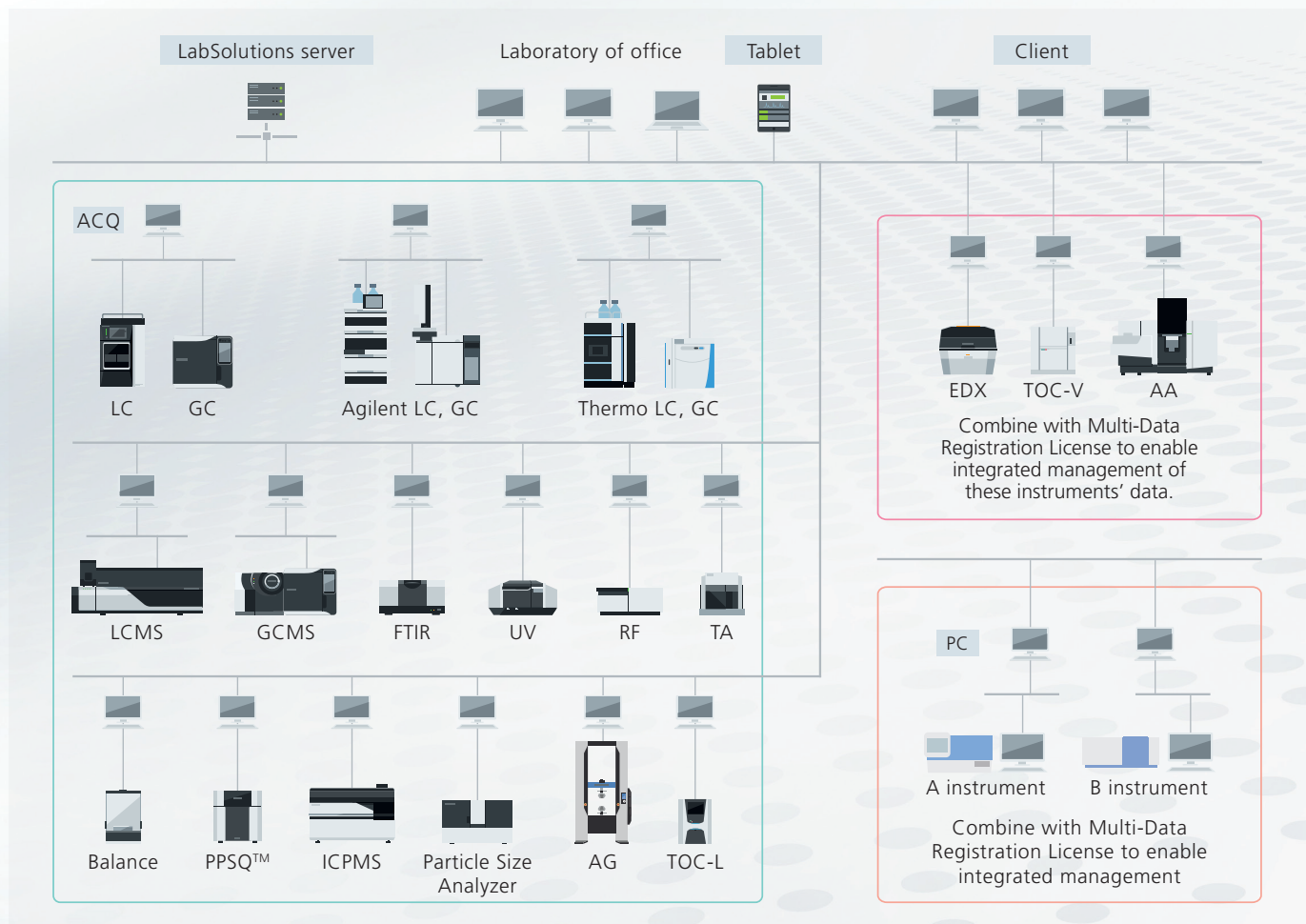






# 04 | Unhindered Data Accessibility LabSolutions CS

LabSolutions CS Connects Everything –  
Only 1 Software Needed To Access Data From Anywhere





# 04 | Unhindered Data Accessibility LabSolutions BiX

Monitor and Manage Laboratory From Anywhere –  
Overview of Resource Utilization At A Glance



Instrument Utilization



User Performance



Audit Trail Review

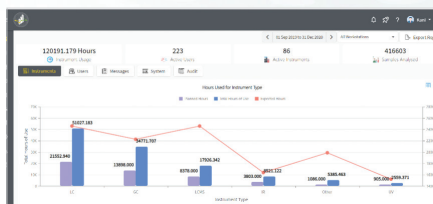


Analysis Planner

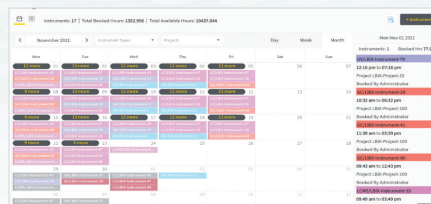


Lab Productivity

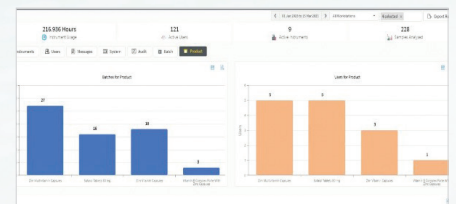
- Insightful graphical dashboards
- Interactive deep drills and statistics
- Web-based, mobile application for data-on-the-go



Instrument Utilization



Analysis Planner



Lab Productivity

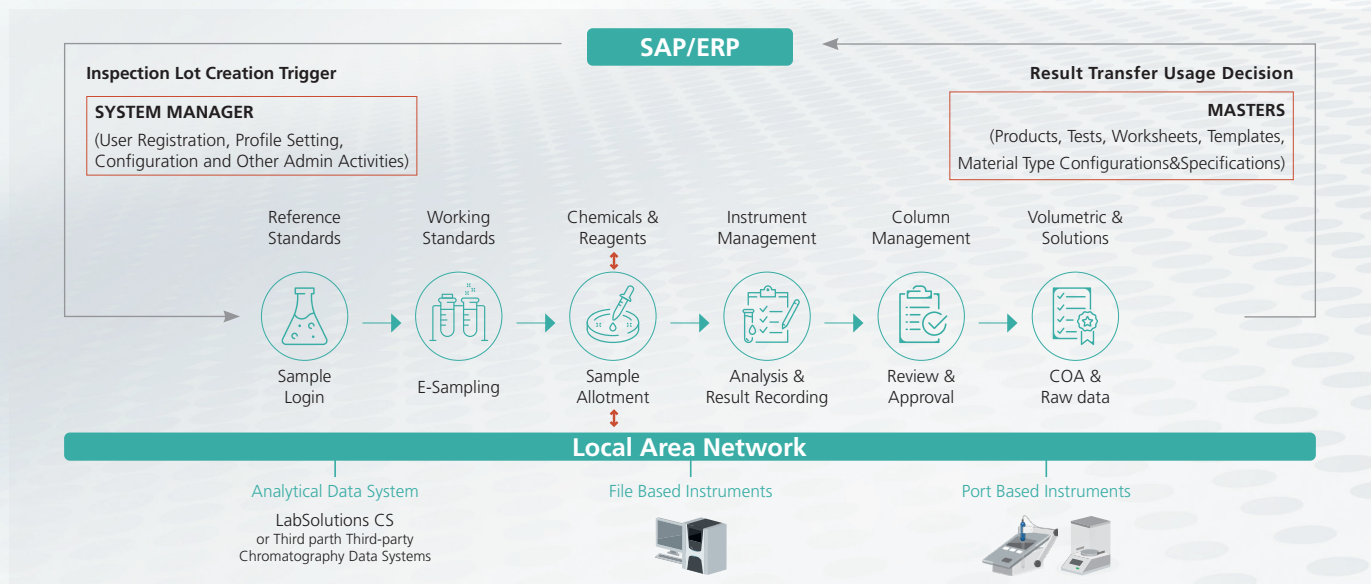


# 04 | Unhindered Data Accessibility CaliberLIMS

Digital Sample Management From Sample Login To Generating Certificate Of Analysis (COA)

## CaliberLIMS

Equipped with a built-in Electronic Lab Notebook (ELN) and scalable architecture, CaliberLIMS is a highly reliable platform that satisfies the needs of modern, efficient laboratories.



### Modular System That Covers Entire Lab Activity With Plug-and-play Modules

- Comprehensive sample workflow automation
- Built-in ELN, Electronic Worksheet with Instrument Interface, Extensive Stability Management & OOS & OOT Process Compliance, Instrument Management, Inventory Management, Analyst Qualification, Labels, Reserve Sample
- Integrates with other applications like SAP, ERP, QAMS, DMS with validated integration engines
- Total automation integration with analytical instruments (CDS, Port and File based)

# 05 | Automation And Integration



Within the Living Laboratory framework, every aspect of laboratory functions is addressed, including sample preparation. Shimadzu's CLAM-2040, a fully automated online sample pre-treatment system, eliminates the need for human intervention by executing tasks such as pipetting, shaking, vacuum filtration, and heating automatically.

Furthermore, Shimadzu is actively developing advanced robotics and autonomous lab systems to accelerate scientific discoveries. These automation technologies will integrate into our LabSolutions CS, LabSolutions BiX, and CaliberLIMS solutions, which will continue to ensure unhindered data accessibility.

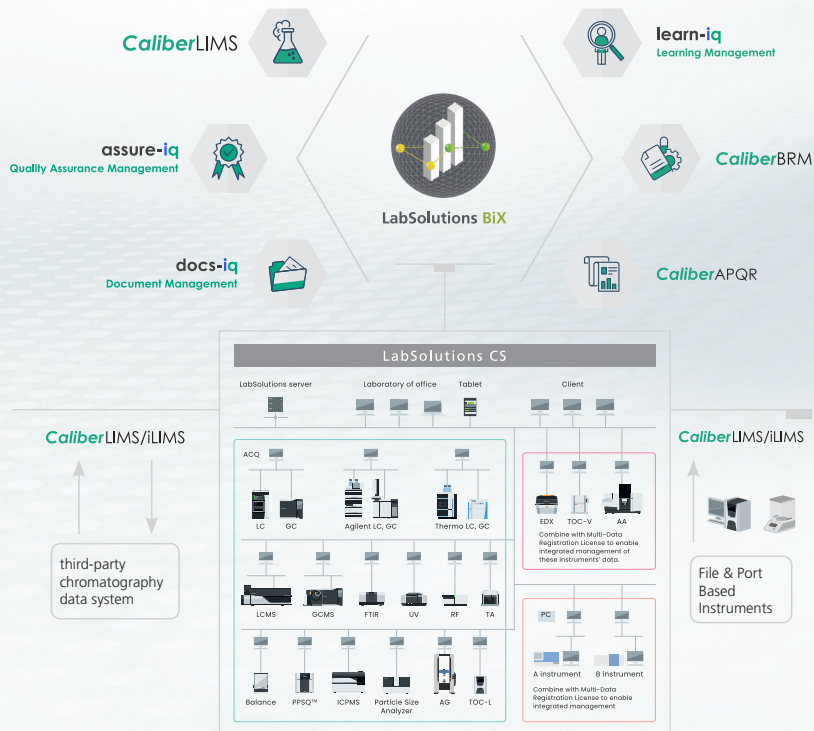
## Further DX With Autonomous Technologies



CLAM-2040 | Unique Flexible LC/MS Automation



Advanced Robotics | Autonomous Lab Systems\*



\*Note: Advanced Robotics systems is not officially available for sale



DX is shaping the  
lab of the future –  
**SHIMADZU LIVING  
LABORATORY  
BRINGS THIS FUTURE  
TO THE PRESENT**



# SHIMADZU LIVING LABORATORY FOR SUSTAINABLE DIGITAL TRANSFORMATION



Gland Pharma Limited  
Hyderabad, Telangana, India

We are impressed with Shimadzu's holistic approach for digital transformation with Living Laboratory and these integrated solutions help our research projects become automated and accelerated.

Our Management is developing sustainable digital strategies to meet the ever-growing demands of pharmaceutical industry, including taking advantage of artificial intelligence (AI) incorporated tools.

We are impressed with Shimadzu's holistic approach for digital transformation through Living Laboratory. Especially, the AI features of analytical instruments for analysis automation such as automated sample preparation, Quality by Design (QbD) solutions for accelerated method development and advanced reporting tools for faster and accurate reporting.

These integrated solutions from Shimadzu are helping our research projects become automated and accelerated.

We are looking forward to implementing more system integrations in the near future and believe Shimadzu Living Laboratory paves the way for it.



**V.N.S.M.V.G. RAJU**

*General Manager, R&D  
Gland Pharma Limited*

HEAR FROM OUR CUSTOMERS

# FROM MONTHS TO WEEKS – AUTOMATING LC METHOD DEVELOPMENT



Daicel Chiral Technologies (India) Pvt. Limited  
Hyderabad, Telangana, India

By enabling Smart Automation & Method Scouting Solution, the initial screening has been automated, and the overall method development process time reduced from 2 months to 2 weeks.

As the life science industry faces a digital revolution, Daicel has started its digital transformation by adopting the Pharma 4.0 framework and Shimadzu Living Laboratory to deliver faster and more accurate results for customers.

A Smart Automation Kit with Method Scouting Solution was used to screen 12 columns and 4 mobile phases in one go, in an automatic manner, which hence reduces the overall method development time from 2 months to 2 weeks.

Under the LabSolutions CS environment, Multi-Data Report can be used to automate complex calculations and Data Integrity Report Set is employed for faster integrated reporting to achieve quick turnaround time in generating accurate reports.

As a result, our overall productivity has increased, and manpower is utilized effectively. We are looking forward to partner with Shimadzu to further digitalize the entire lab workflow with Living Laboratory.



**CH. TIRUPATHI**

*Director – Separation Sciences  
Daicel Chiral Technologies  
(India) Pvt. Limited*

# ENABLING AUTOMATED, INTELLIGENT ANALYSIS USING LIVING ALGORITHMS



Immaculé Lifesciences (P) Ltd  
Baddi, Himachal Pradesh, India

The data processing of complex peaks are further simplified even for novice users with intelligent integration algorithms such as i-PeakFinder™, i-PDeA II, and i-DReC.

Innovative and automated features of LabSolutions CS have significantly improved our lab productivity and workflow quality.

With Weighing Automation, we have enhanced our compliance even for balances by connecting to LabSolutions CS, which automatically register standard and sample weights into the batch/sequence. Furthermore, these values can be fetched into Multi-Data Report for automated calculations.

The data processing of complex peaks are further simplified even for novice users with intelligent integration algorithms such as i-PeakFinder™, i-PDeA II, and i-DReC.

With LabSolutions CS, our total laboratory productivity has improved as we spend less time on data processing and review. Data Management and presentation during audits have become faster and we have faced zero observations in US FDA audits .



**MANGESH  
KOTHEKAR**

*Senior General Manager  
Immaculé LifeSciences (P) Ltd*



HEAR FROM OUR CUSTOMERS

# A THRIVING SHIMADZU ECOSYSTEM – MEETING RIGOROUS DEMANDS 24/7



Corona Remedies Private Limited  
Ahmedabad, Gujarat, India

Shimadzu LabSolutions CS has been able to meet our rigorous performance demands in 24x7 work environment.

We have 55 Shimadzu i-Series HPLC systems with Smart Automation Kit. Thanks to Shimadzu Living Laboratory, we have achieved Weekend Automation by using multiple column switching performed with different mobile phases and Automated System Preparation. The latter provides auto purging of each mobile phase, column saturation, and tracing of system suitability to prevent incidents.

All of these instruments are connected with LabSolutions CS, which easily integrates with i-PeakFinder™ algorithm, enables data integrity with Report Set and offers auto calculation with Multi-Data Report.

Shimadzu LabSolutions CS has been able to meet our rigorous performance demands in 24x7 work environment.

We aim to adopt more Shimadzu solutions such as Analytics with LabSolutions BiX and Work From Anywhere to maximize our laboratory performance.



**DR. GIRISHA PATEL**

*AVP-Corporate Quality  
Corona Remedies  
Private Limited*



Explore endless possibilities –

**DISCOVER  
SHIMADZU LIVING  
LABORATORY  
WITH US TODAY**





Work From Anywhere (WFA)



Ultra Fast Mass Spectrometry



ANALYTICAL INTELLIGENCE



Living Analytics



Reporting Engine



End-To-End Workflows



Living Algos



LabSolutions CS



LabSolutions BiX



Peakintelligence™



Method Development Solutions



Cloud Computing



Autonomous Lab Systems



CaliberLIMS



SMART APP 2.0



Scan for more

