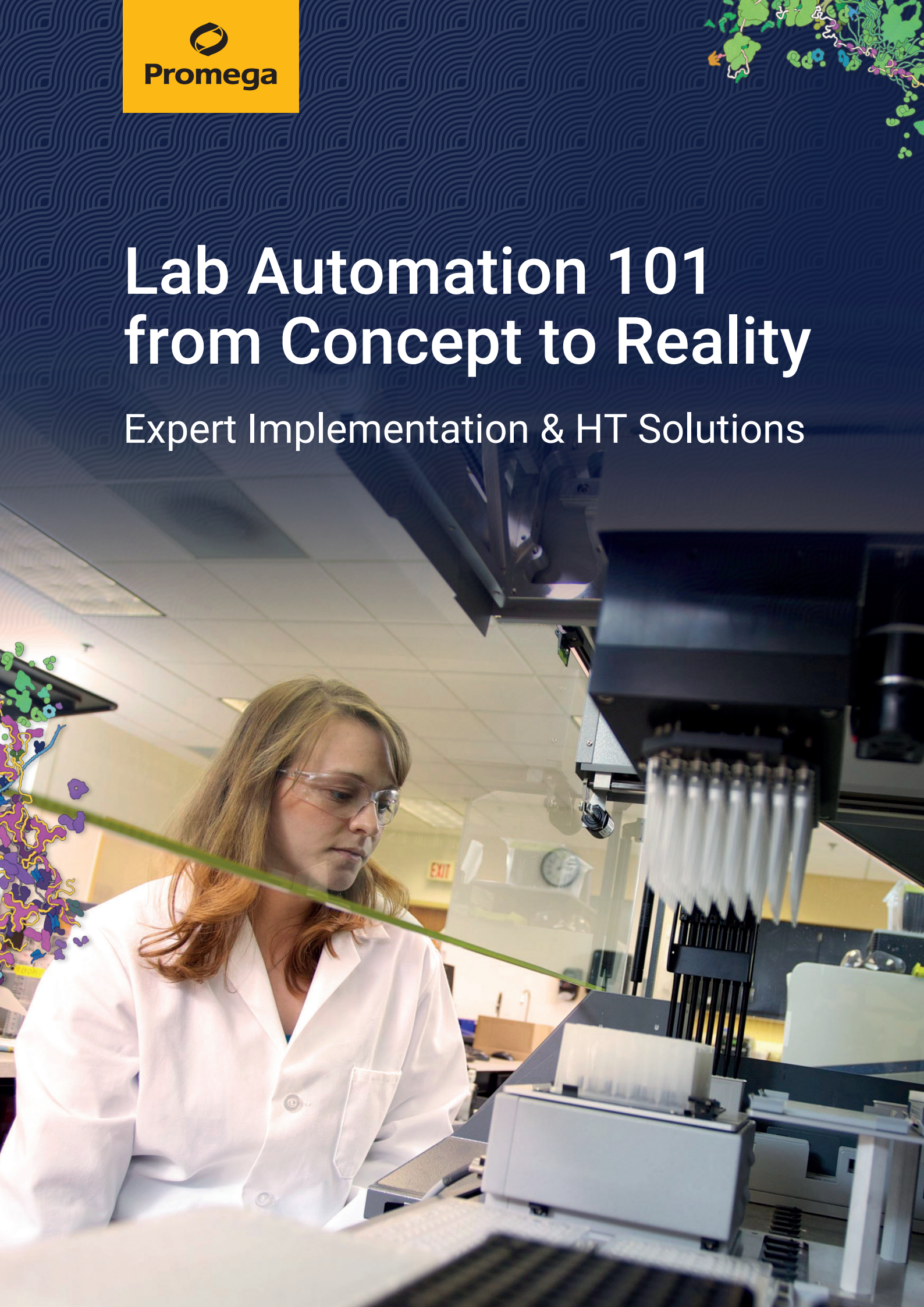
Promega

Lab Automation 101 from Concept to Reality

Expert Implementation & HT Solutions



Overview

» **Is your lab's efficiency suffering due to high workloads? Need higher throughput to keep up?**
» **Facing challenges meeting regulatory standards while ensuring consistent, reproducible data?**

Automating your lab unlocks valuable benefits–saving time, increasing throughput, and improving quality. But getting there presents various challenges, from selecting the right platform and chemistry to integrating everything seamlessly. The abundance of available options can be overwhelming.

However, you don't have to face the complexities of automation implementation alone. When you partner with Promega, you gain access to our team of Field Support Scientists and Field Applications Scientists. With a combined experience of over 125 years in automation chemistries and platforms, our expert team is here to guide you efficiently from concept to a fully functional workflow.

And our support doesn't stop there–we remain accessible whenever you need assistance, offering expert guidance in both biology and automation. When you choose Promega, you're investing in a partnership dedicated to guaranteeing your success in achieving a seamless and successful automation transition. Trust us to be your dependable and capable partner every step of the way.

» Excited to start with automation but uncertain about where to initiate your lab automation journey?
» Overwhelmed by the multitude of options available?
» Unsure of the best path forward?

Reach out for expert support and tailored recommendations during every step of your automation journey.

Learn how our FSS team helped to streamline high-throughput nucleic acid extraction, enabling efficient SARS-CoV-2 testing alongside existing workflows.

Inquire about Expert Automation Support

www.promega.com/labautomation

Benefits

Increased Efficiency and Throughput:
Accelerate experimentation and analysis, handling larger sample volumes in less time.

Enhanced Accuracy and Precision:
Minimize human error for consistently accurate and precise results.

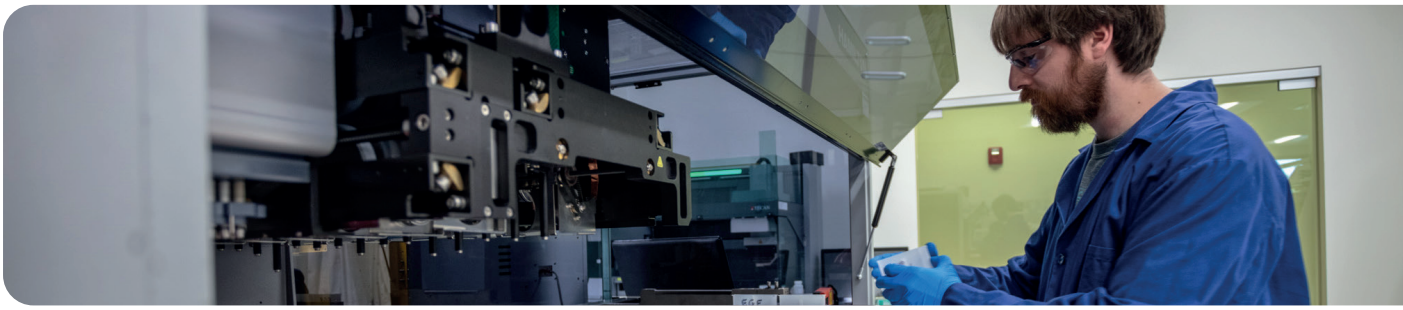
Time and Resource Savings:
Free up your researchers' time and reduce labor costs with automated, repetitive task handling.

Cost-Effective Operations:
Initial investment yields long-term savings through minimized labor costs and error prevention.

Improved Data Quality and Documentation:
Generate standardized, well-documented data, ensuring compliance and easy reproducibility.

Expanded Experimental Capabilities:
Execute intricate experiments impractical or impossible manually, unlocking new research avenues.

Optimized Workflow Integration and Adaptability:
Create a seamless, interconnected workflow with integrated lab automation processes. Easily adapt or expand automated systems to meet evolving research needs and workloads.



Applications

Nucleic Acid Analysis

- gDNA purification
- RNA purification
- Plasmid extraction
- ccfDNA purification from plasma
- STR workflows
- DNA & RNA Clean-up
- Preparation of NGS Libraries

Protein Analysis

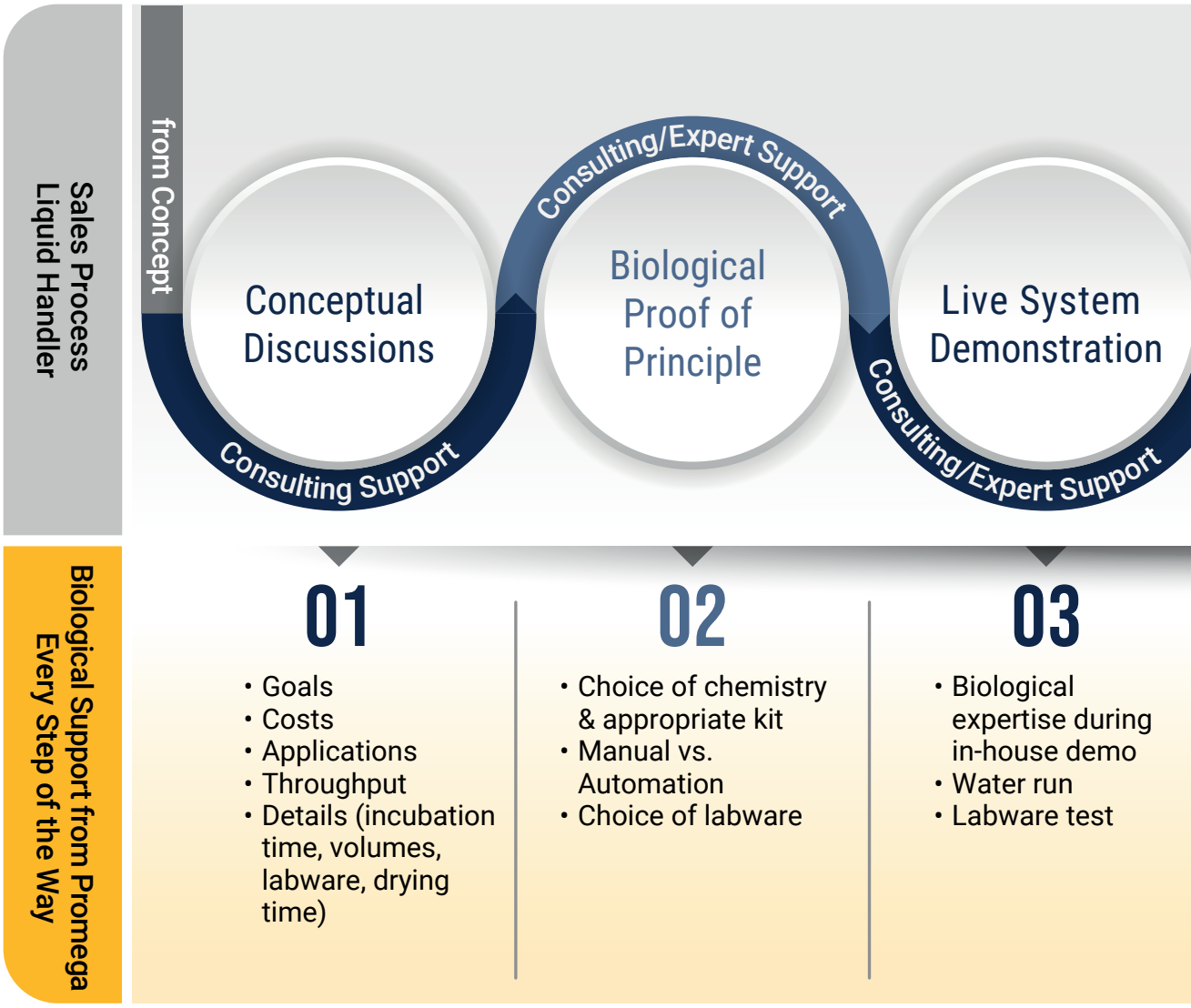
- Purification of antibodies
- Protein sample preparation for mass spectrometry
- Purification of polyhistidine proteins
- Purification of biotinylated antibodies and proteins

Cellular Analysis

- Cell Health Assays
- Cellular Metabolism Assays
- Immunoassays
- Bioassays

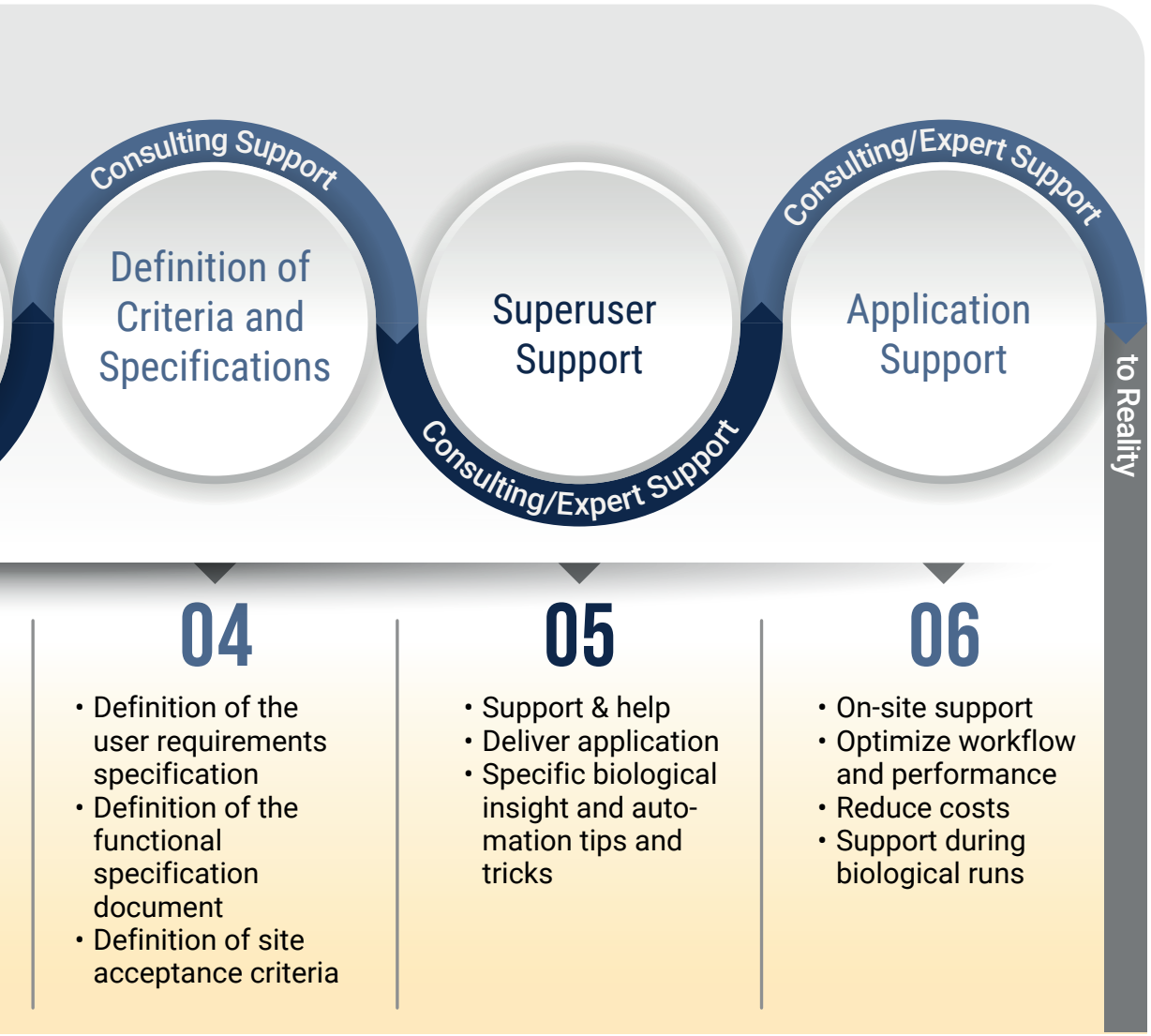
From Concept

The Automation Journey



From Concept to Reality and Beyond: Starting a lab automation project opens the door to more efficient, scalable, and reliable workflows. But moving from the first idea to a working solution can be complex. Success depends on a well-structured process: setting clear goals, understanding application needs, choosing the right tools and reagents, and aligning every element into a coordinated workflow.

to Reality



Throughout the journey, expert support helps ensure that each step–from initial discussions to system validation and biological applications–is carefully planned and executed.
With Promega as a trusted partner, chemistry, instrumentation, and biology come together in a solution built around your specific needs. The result is a workflow that fits seamlessly into your lab, supported by a partner who remains by your side even beyond implementation.

Platforms

Ready-to-Go Extraction Kits

Expert Support for Any Liquid Handling System

Assay Scale-Up and Custom Support

Experienced Partners

Streamlining your workflow becomes simpler with the dedicated support of an experienced partner. Our Field Support Scientists bring expertise across all major automation platforms, including:

ThermoFisher
KingFisher™ APEX & KingFisher™ Flex

Analytik Jena
CyBio® FeliX

Hamilton
Microlab® STAR and STARlet

Eppendorf
epMotion®

Tecan
Fluent®, Veya™ and Freedom Evo®

Beckman
Biomek® i5 and Biomek® i7

References

Plasmid Purification
High-Throughput Plasmid Purification with Large-Volume Bacterial Cultures on the Hamilton STAR Liquid Handler

DNA Purification
Automated High-Throughput DNA Purification from Blood on the KingFisher™ Apex PA929

RNA Purification
RNA Purification from Plant Leaf and Seed using the Maxwell® HT simplyRNA Kit on the KingFisher™ Flex Automation Platform PA130

RNA Purification
High Throughput Automated RNA Purification From Cultured Cells On The Tecan Freedom EVO®150 PA648

Cell Viability Analysis
Automated CellTiter-Glo® 2.0 Cell Viability Assay on the CyBio® FeliX from Analytik Jena PA938

Compound Affect Testing
CyBio® FeliX flexible pipetting platform with RealTime-Glo™ MT Cell Viability Assay multiplexed and CellTox™ Green Cytotoxicity Assay PA933

Versatility

Selection of Sample Types for Nucleic Acid Purification

Selection of Products for Different Applications

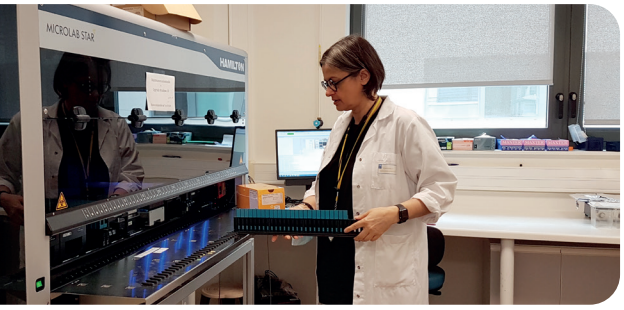
Product Category	Product	Size	Cat. #
RNA Extraction from tissue	Maxwell® HT simplyRNA Kit, Custom	4 x 96 preps	AX7890
Genomic DNA Extraction	Maxwell® HT Genomic DNA Kit	4 x 96 preps	A6050
Plasmid Purification	Wizard MagneSil Tfx System	4 x 96 preps	A2380
ccfDNA Extraction	Maxwell® HT ccfDNA Kit	1 x 96 preps	A6030
Bioassay	PD-1/PD-L1 Blockade Bioassay	1 kit 2 x 1.0 ml	J1250 J1252
Cell Health	CellTiter-Glo® 2.0 Cell Viability Assay	10 ml 100 ml	G9241 G9242
RealTime-Glo™ MT Cell Viability Assay	RealTime-Glo™ MT Cell Viability Assay	100 reactions 1000 reactions	G9711 G9713

For further products & product information reach out to **www.promega.com/support/tech-support**
For more resources on lab automation, visit: **www.promega.de/labautomation_resources**

Customer

Streamlining Cancer Diagnostics

University Hospital of Rennes



"Promega team perfectly understood our needs and translated it into solutions. […]. Nans [a Promega Field Support Scientist] came in November 2020 to install the script and test the protocol, between two [Covid] lockdown periods. The week after, I was already extracting FFPE samples with the new method. […]. After we got the first results from samples extracted with the Promega Maxwell® HT FFPE System, we realized that sample quality with our in-house technique was suboptimal. Initially, ovarian tumor samples were tested with Promega's protocol then we extended its use to all tumor types. Quality improvement is quite phenomenal, we can reduce the number of re-testing and reduce time to results. […]. We switched to routine on April 1st . […]. After several weeks, we were able to make small adjustments to make everyone feel comfortable with the instrument and the protocol."

Dr. Alexandra Lespagnol, Technical Manager

Background:

The Molecular Genetics of Cancer core-lab at the University Hospital of Rennes faced increasing demands for higher throughput and improved accuracy in nucleic acid extractions from challenging FFPE tissue samples. Lung cancer biopsies, often of low quality or limited in size, were especially problematic, as successful DNA extraction is critical for Next-Generation Sequencing (NGS) analysis. With their existing manual processes, the lab struggled to meet the standards required for reliable diagnostics and timely patient care.

Recognizing the need for automation, the lab partnered with Promega to develop a solution. The goal was clear: streamline the extraction process while improving both yield and quality of DNA from FFPE samples. Promega's Field Support Scientist (FSS) team worked closely with the lab to implement the Maxwell® HT DNA FFPE chemistry on their existing Hamilton Star robotic platform. The result? A fully automated workflow capable of processing up to 96 samples in under two hours–vastly improving both efficiency and reproducibility.

Revolutionizing Plant Pathogen Detection

Valto Biocontrol

"The Maxwell® technology helped us isolate viral RNA of very high quality and high throughput. This made screening high numbers of samples easy and reliable. […] . A huge benefit is that we can isolate both RNA and DNA or a mix using the same kit. […] Promega's Field Support Scientist team was open to converting protocols to be used on this isolation robot, from the custom dispensing of the consumables to a software file ready for the KingFisher itself."

Dr. Menno Westerdijk, Head of Laboratories

Success Stories

Background:

Valto Biocontrol, an innovator in sustainable crop protection, needed a faster, more efficient way to detect plant pathogens like the Pepino mosaic virus. Their reliance on outsourced nucleic acid extraction resulted in delays of up to two weeks, creating bottlenecks that slowed decision-making and risked production setbacks for their V10 biocontrol product.

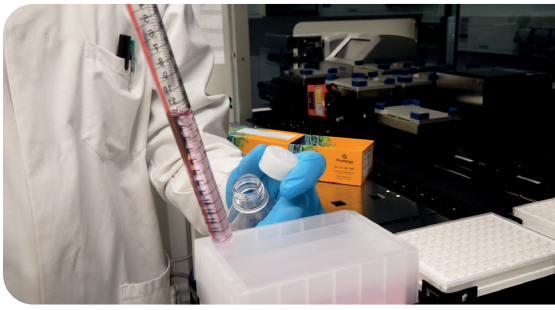
To take control of their workflow, Valto partnered with Promega to implement an automated extraction solution using the Maxwell® HT simplyRNA Kit. Promega's Field Support Scientist (FSS) team worked closely with Valto, developing a tailored high-throughput protocol to integrate seamlessly into their workflow. The automated solution allowed Valto to bring nucleic acid extraction in-house, cutting processing time from two weeks to just one day. It also improved data quality and reliability, strengthening their ability to manage pathogen detection and crop protection more effectively.

Automating Bioassays

Eurofins Biopharma Product Testing

"Working with Promega has been an excellent collaboration. Their in-depth knowledge of both their kits and the automation system itself has been invaluable. Our goal in this partnership is to implement a semi-automated and GMP-qualified cell-based potency assay (bioassay) that we can offer to our customers as a ready-to-use solution–without long delays or extensive method development. Promega's expertise and support are helping us bring this vision to life efficiently and seamlessly."

Dr. Sean Lin, Group Leader, Biologics and Bioassay Testing

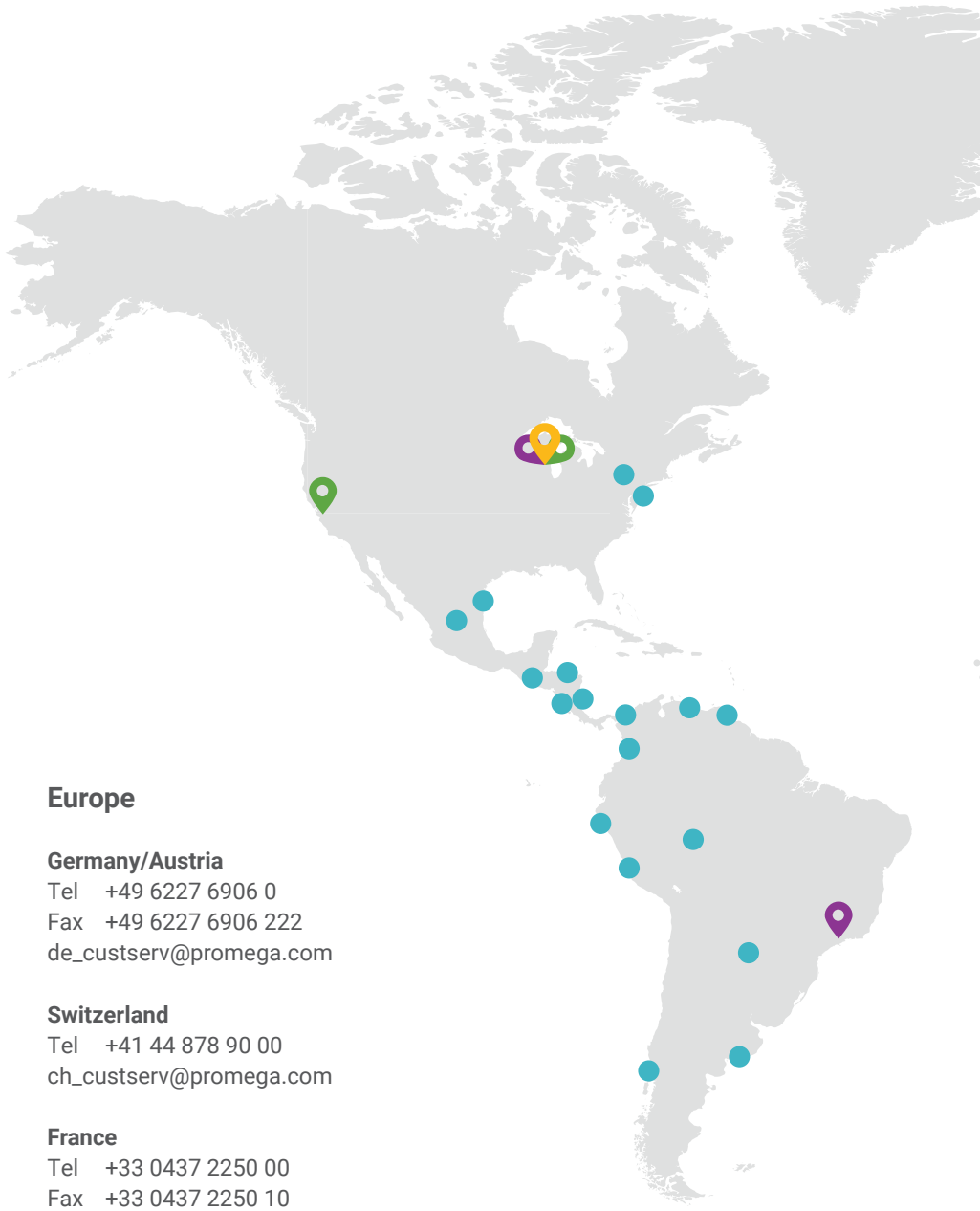


Background:

Eurofins Biopharma Product Testing Munich GmbH (Eurofins Munich) faced an increasing demand for GMP sample testing to support regulatory-relevant potency assessments while ensuring method consistency, turnaround time and cost efficiency. However, their established workflows relied on manual method performance, which limited scalability and flexibility. To overcome these challenges, Eurofins Munich collaborated with Promega to implement an automated cell-based PD-1/PD-L1 Blockade Bioassay using the Hamilton Microlab STAR liquid handling system. A dedicated Promega Field Support Scientist worked on-site for two weeks with the Eurofins Munich Hamilton Specialist to program and implement the method.

This joint venture paved the way for GMP method qualification by increasing throughput and reducing hands-on time while maintaining method accuracy and precision comparable to manual methods. This advancement ensures compliance with industry regulations and expands Eurofins Munich's capacity to handle large sample volumes. Building on the success of this initiative, further semi-automation of other cell-based potency assays, such as ADCC and GLP-1 bioassays, is planned.

Contact



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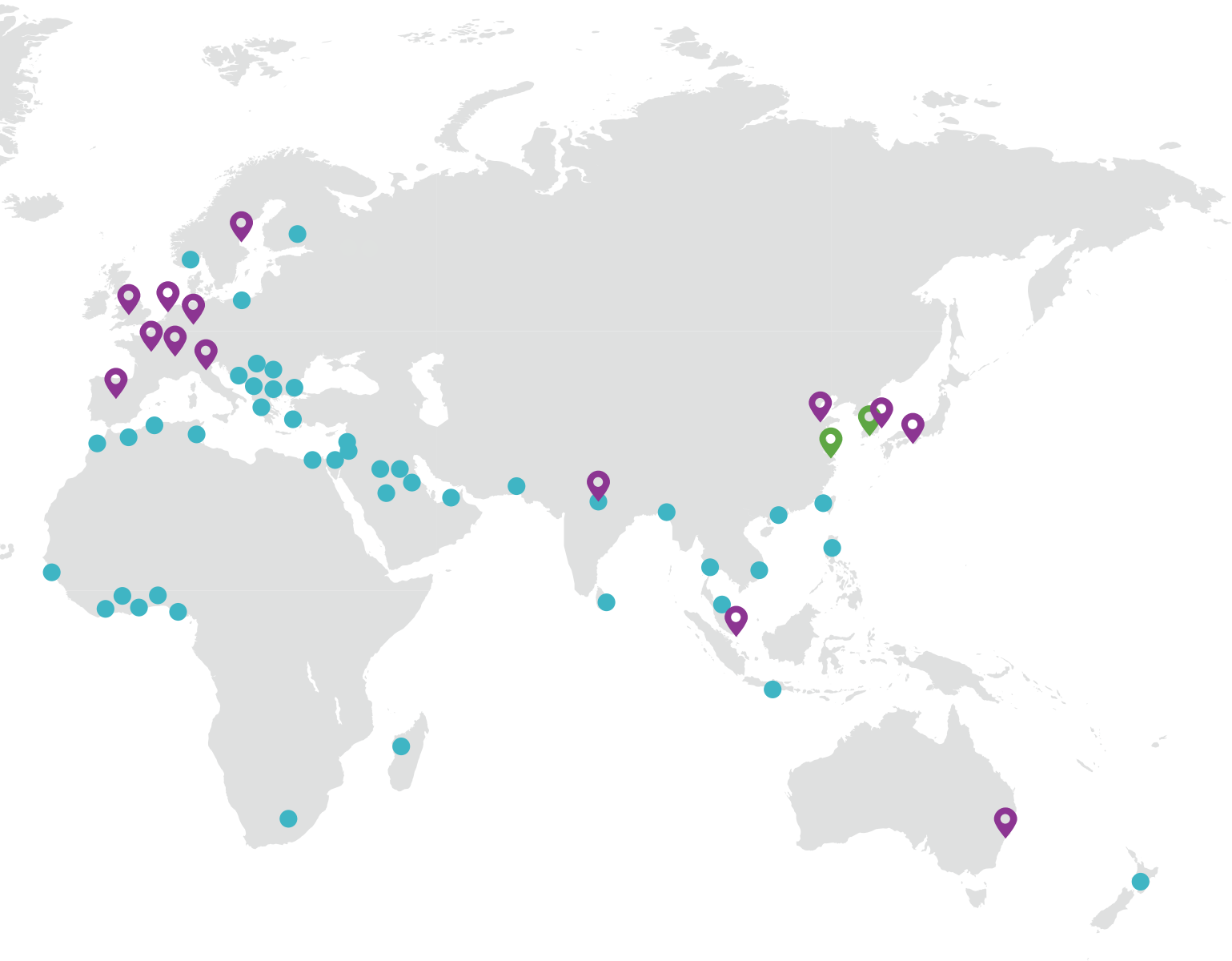

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