Transforming microbiology. Improving laboratory outcomes.

BD Kiestra™ solutions deliver scalable, modular automation that enhance laboratory operations, maximize financial efficiencies[1] and advance laboratory outcomes.

BD

BD Kiestra™ Solutions
Expanding your laboratory's capabilities

Your laboratory may be experiencing challenges such as:

▶ Increasing sample volumes and staffing shortages

▶ Financial pressures from reduced budgets and smaller reimbursements

▶ Resistant organisms demanding accurate detection

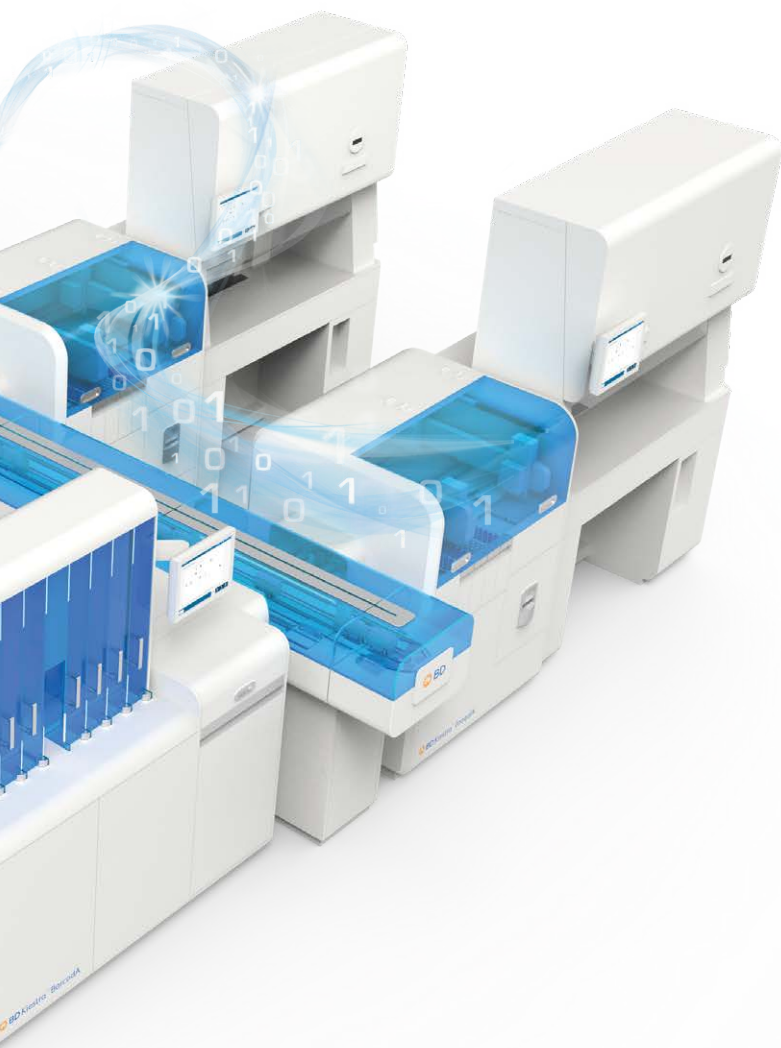▶ Lack of access to relevant data for simplified workflow management, analytics and instrument integration

Discover how BD Kiestra™ Solutions can help you:

▶ Enhance laboratory operations

▶ Maximize financial efficiencies[1]

▶ Advance laboratory outcomes
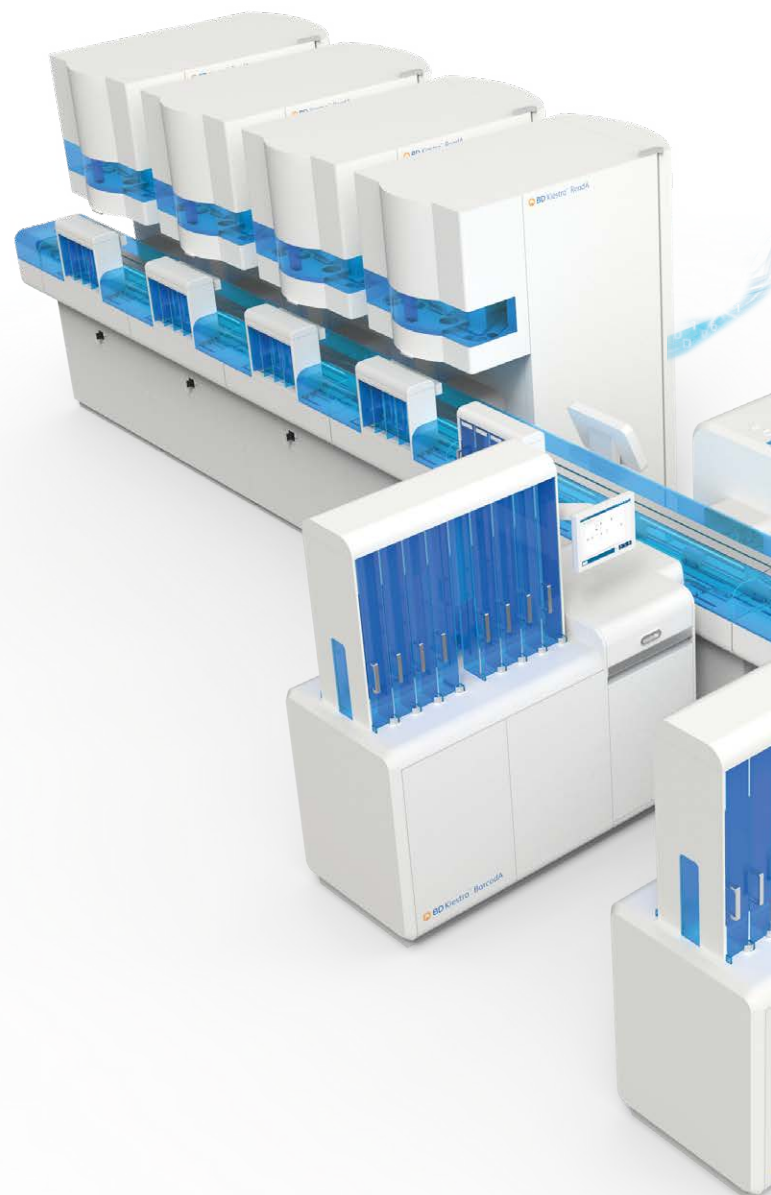
Powered by
**BD Synapsys™
Informatics Solution**

BD Kiestra™ Solutions are enabling laboratories such as yours to meet these changing demands by:

- Offering scalable solutions from sample processing to results reporting

- Leading to accurate, timely and cost-effective testing,[1] enabling you to expand your laboratory's capabilities

- Enabling secure access to data, on demand access to analytics with BD Synapsys™ Informatics Solution, for simplified workflow management and instrument integration

- Improving laboratory productivity, efficiency and turnaround time and helping enable staff efficiency by reducing rework[5]

Standalone laboratory automation

Automating specific microbiology tasks

BD Kiestra™
Standalone
solutions

BD Kiestra™ Standalone solutions are modular and scalable to fit your laboratory's workflow and size, enabling you to help automate your laboratory's most challenging processes and expand your automated solution as your needs evolve.
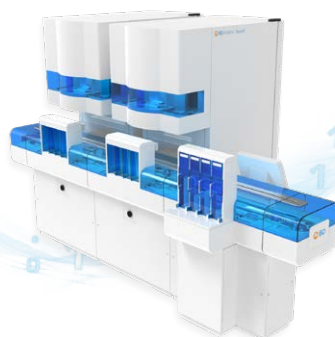
Powered by
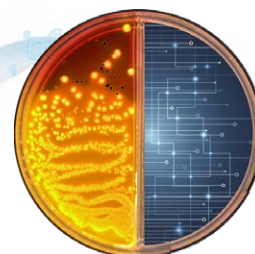**BD Synapsys™**
Informatics Solution

BD Kiestra™ InoqulA

Automated barcoding and sorting of plates, and processing of both liquid and non-liquid samples

BD Kiestra™ ReadA

Automated incubation and high-resolution plate imaging

BD Kiestra™ Imaging Applications

AI-developed applications that enable high resolution, standardized plate imaging

▶ **Manage operational costs** with the solution targeted to your laboratory's size and needs

▶ **Simplify workflow management** and enable secure access to data with BD Synapsys™ Informatics Solution

▶ **Design a solution today** that can grow with tomorrow's increasing demands

BD Synapsys™ Informatics Solution

Digital culture reading and culture work-up management

BD Kiestra™ IdentifA

Automating colony picking, target spotting and McFarland creation

BD Synapsys™ Informatics Solution

**Reporting of results and laboratory analytics**

Total laboratory automation (TLA)

Flexible instrument and AI-imaging application options to automate the microbiology workflow


BD Kiestra™ Total Laboratory Automation is the end-to-end automated workflow from plate labeling, plate reading, inoculation, incubation and imaging, reading and follow up work, maximizing staff efficiency and lab productivity.[1]
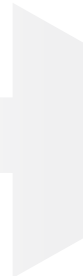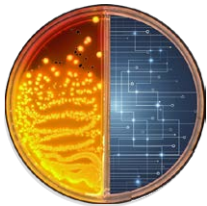
The new BD Kiestra™ TLA allows flexibility and scalability, to create the best configuration to meet your lab's needs

▶ Drive standardization and traceability and help achieve staff efficiency by reducing rework[5]

▶ Enhance operational efficiencies by automating the workflow from inoculation

▶ Minimize hands on time by eliminating the manual sorting of plates and walking the plates from module to module

Powered by
BD Synapsys™
Informatics Solution
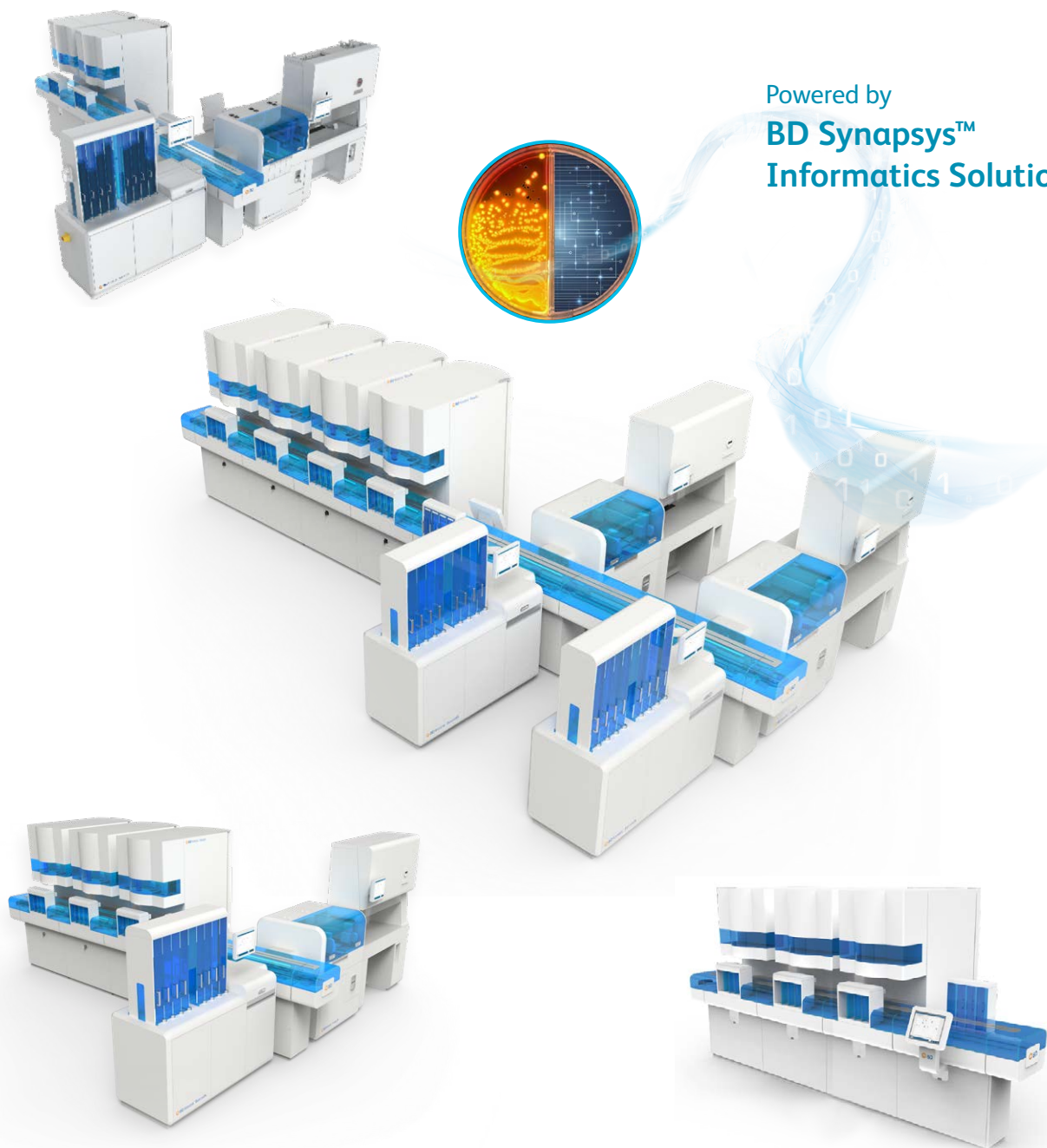
BD Kiestra™ InoqulA

Advanced technology for both liquid and non-liquid sample processing.

Powered by BD Synapsys™ Informatics Solution, the BD Kiestra™ InoqulA delivers workflow efficiency, accuracy and standardization enabling fast time to results and cost savings compared to loop based methods[1,2]

Gain workflow flexibility and process urgent, user-prioritized samples on demand

Enables on-demand automated processing of urgent samples, minimizing interruptions to workflow

ADVANCED TECHNOLOGY
FOR BOTH LIQUID
AND NON-LIQUID
SAMPLE PROCESSING

Powered by
**BD Synapsys™
Informatics Solution**

Reduce operational cost and turnaround time through improved colony isolation compared to loop-based streaking[1]

Reduces sub-cultures by up to 73% depending on the streak pattern[1] and may shorten the time to identification and antimicrobial susceptibility testing up to one working day[1]

MORE DISCRETE COLONIES[1]

REDUCE SUBCULTURES **BY 73%**[1]

*Depending on the streak pattern
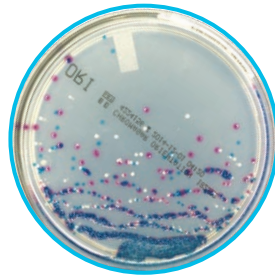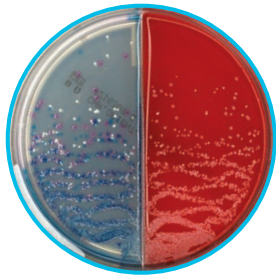
BD Kiestra™ InoqulA
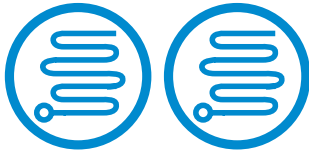
Manual

Deliver standardized inoculation volume and streaking, supporting accurate pathogen identification[1]

Provides accurate inoculation through the use of calibrated conductive pipette technology[3]

iestra™ BarcodA

BD Kiestra™ ReadA

The BD Kiestra™ ReadA provides closed door incubation and high throughput imaging to streamline laboratory workflow.

Achieve operational efficiency by automating routine plate management tasks

Quality plate tracing and standardized, protocol-driven incubation times

Enhance bacterial growth by standardizing incubation times and conditions

BD Kiestra™ ReadA may increase bacterial growth by up to 46% compared to traditional microbiology[4,*]

UP TO
46%
MORE BACTERIAL GROWTH[4*]
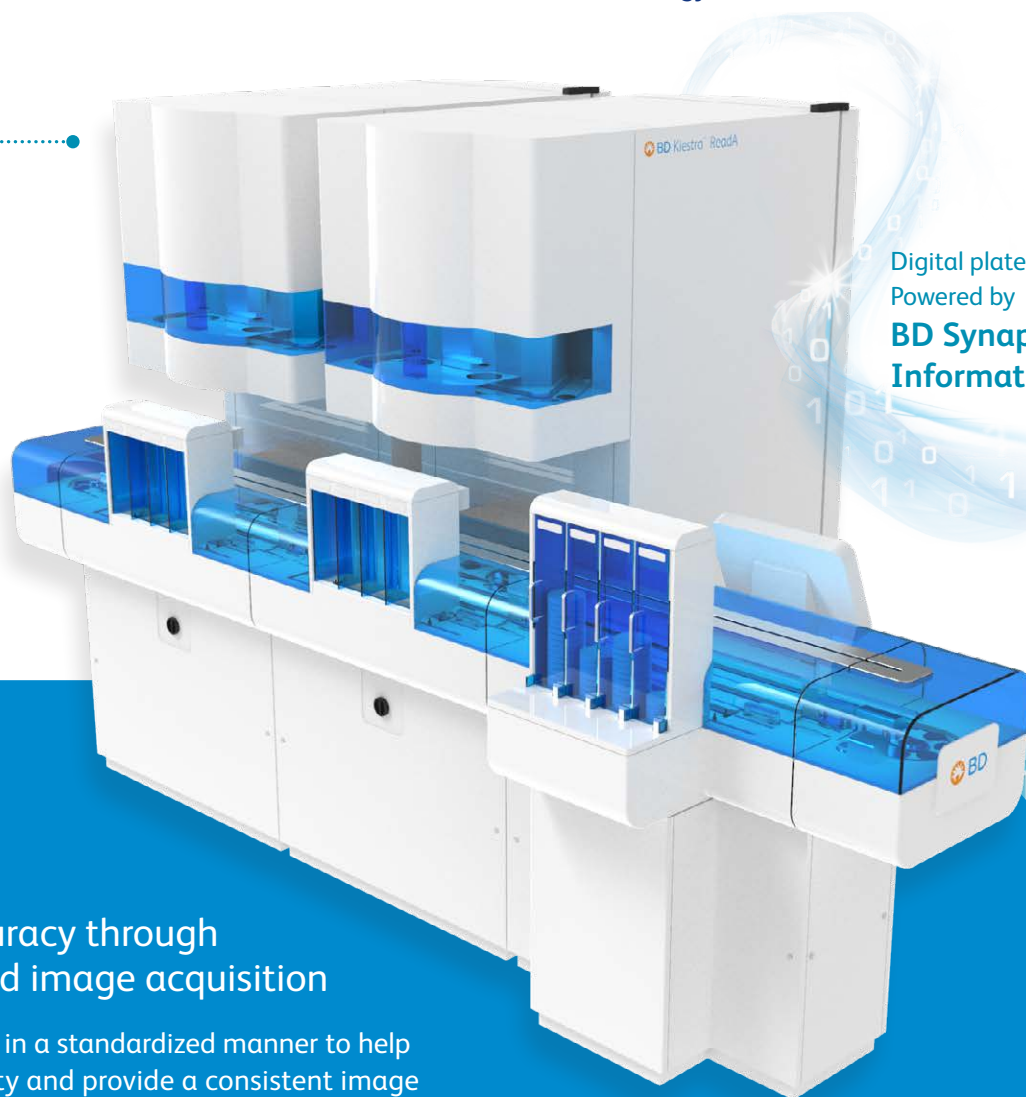
Digital plate reading
Powered by
BD Synapsys™ Informatics Solution

Deliver accuracy through standardized image acquisition

Capture images in a standardized manner to help reduce variability and provide a consistent image result for review

*Based on studies of urine cultures with selected organisms

Combine high-speed performance and standardized image acquisition to enable dynamic diagnostic imaging

See details invisible to the human eye

Improve colony detection and reduce image variability

BD Kiestra™ ReadA contains a 25-megapixel camera with a telecentric lens and ensures plates are oriented for consistency of images over time

+

BD Kiestra™ Optis technology acquires up to 22 images of each plate and determines the optimal value for each pixel using three light sources: top, bottom and side
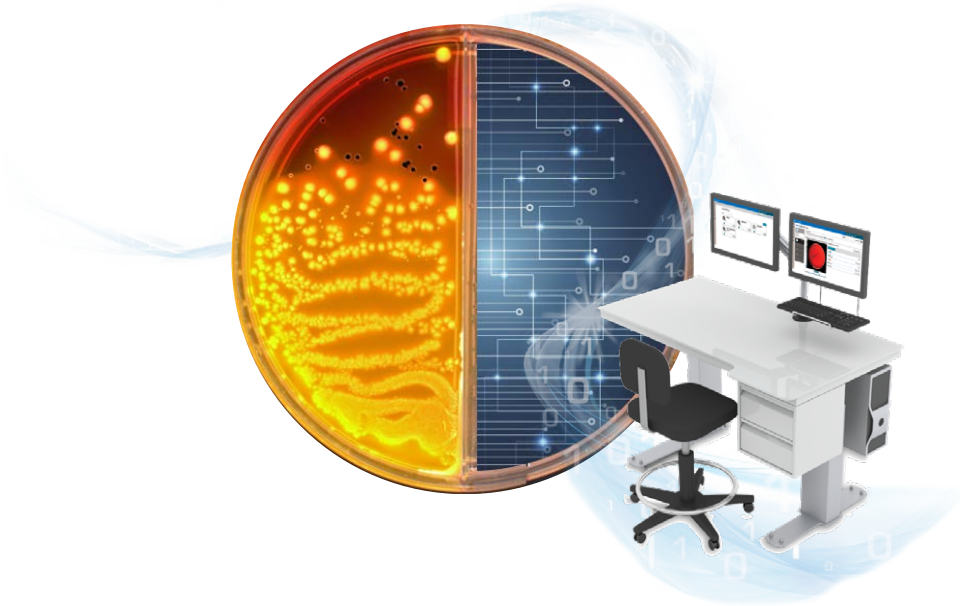
25
Megapixels

Telecentric lens

300 IMAGES
Per hour

Automatic plate orientation
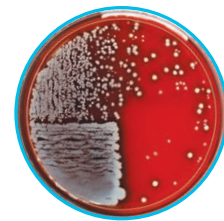
>10+ YEARS
Expertise

BD Kiestra™ Urine Culture Application (UCA)

Batch report no growth or non-significant growth samples

User-created expert rules using patient demographics or test results drive a consistent workflow

BD validated media for automated growth evaluation

Designed using artificial intelligence (AI) and leveraging the quality of BD BBL™ plated media, the BD Kiestra™ UCA helps you prioritize your daily workflow.

The BD Kiestra™ UCA uses digital imaging and software algorithms to determine the amount of growth on a urine culture plate from clean caught and catheterized samples, helping labs maximize their productivity by:

- Batch reporting samples with no growth or non-significant growth based on user-defined rules

- Utilizes BD BBL™ CHROMagar™ media

- Prioritizing and focusing on the critical and complex specimens by organizing those specimens into meaningful worklists in BD Synapsys™ Informatics Solution

- Freeing up staff's time to focus on critical and complex specimens

$10^1 - 10^5$

Automatically read plates for growth utilizing five buckets for semi-quantitation

Introducing the BD Kiestra™ Methicillin-resistant Staphylococcus aureus application (MRSA)

User-created expert rules using patient demographics or test results drive a consistent workflow

Automating manual processes with innovative AI-designed imaging algorithms, BD Kiestra™ MRSA helps labs maximize their productivity by:

- Batch reporting non-mauve growth specimens based on user-defined growth threshold to lab technician for review

- Automatically organizing and sorting plates into a meaningful worklists in BD Synapsys™ informatics based on mauve color recognition and other growth for immediate follow up action

- Helping to detect mauve growth for MRSA in nasal specimens on BD BBL™ CHROMagar™ MRSA II medium

Batch report no growth samples

BD validated media for automated growth detected on BD BBL™ CHROMager™ MRSA II medium
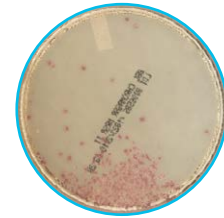
Color recognition to enable mauve color growth detection without confirmation testing*

*for anterior nares specimens only

BD Kiestra™ IdentifA

Automated picking of user-selected colonies, creates a McFarland suspension and spots a BD™ Bruker MALDI Biotyper® CA target

Automated and accurate colony picking

The only FDA-cleared system that is available as part of a track-connected laboratory automation solution which can yield rapid and accurate identification of bacteria and yeasts, BD Kiestra™ IdentifA supports specimen preparation workflows for routine and challenging isolate types and is designed to ensure the optimal amount of organism is applied to the MALDI-TOF target.

Powered by
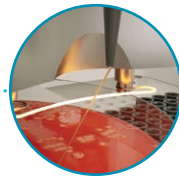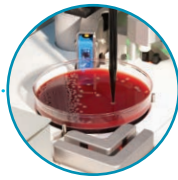**BD Synapsys™
Informatics Solution**

Improve operational efficiency

Streamline your MALDI workflow by combining the BD™ Bruker MALDI Biotyper® CA System with BD Kiestra™ IdentifA for target preparation and accurate pathogen identification.

Streamlines laboratory operations

BD Kiestra™ IdentifA is designed to help reduce labor and processing errors, by supporting your workload for routine and challenging isolates, including mucoid strains.

BD Kiestra™ IdentifA automatically picks user-selected colonies and prepares the BD™ Bruker MALDI Biotyper® target using the following process
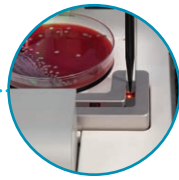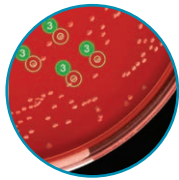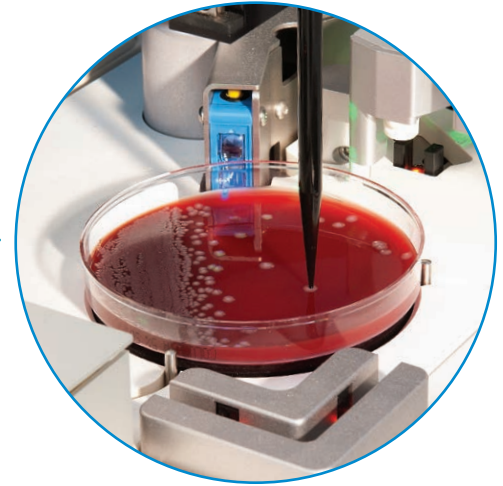
Digital colony marking

Precise user-selected colony markings utilizing BD Synapsys™ Informatics Solution and a visual "safe zone"

Plate identification and orientation

Barcode-driven plate orientation confirming colony coordinates

Pipette tip calibration

Calibrated pipette tips support accuracy and precision for colony picking and spotting

Level sensing and colony picking depth

Colony-level sensing through conductive pipette tips

Mucoid strain detection and processing

Active mucoid strain detection, cutting and processing

McFarland suspension creation

Isolate suspension created in 300 µl of deionized water

BD Synapsys™ Informatics Solution

BD Synapsys™ Informatics Solution

Simple	
	Virtual bacteriology enables access to digital reading workflow anytime, anywhere; share information with expert bacteriology staff
	Intuitive personalized user interface helps you streamline digital reading
	A **single, browser based informatics platform** for microbiology supports multiple instrument types in the workflow
	Analytics offer actionable insights that help drive productivity and may impact your lab performance including time to read plates
	Customize and share worklists by patient demographics and specimen type, to guide staffing needs and streamline productivity

BD Synapsys™ Informatics Solution offers integrated workflow and on-demand insights to help empower laboratory staff to impact turnaround time, expedite laboratory decision making, improve productivity and simplify compliance

BD Synapsys™ Informatics Solution making your lab workflow simple, smart and safe

|		
Smart	**Integrated workflow for positive blood cultures** across BD BACTEC™, BD Kiestra™ IdentifA and BD™ Bruker MALDI Biotyper®
	Maintain complete **specimen and plate traceability** for blood culture and MALDI organism ID
	Integrates imaging applications developed with Artificial Intelligence (AI) for automated urine culture growth
	Sophisticated customizable rules engine helps with connectivity, workflow management and laboratory operations
	Guided test ordering (by organism, specimen or culture criteria), standardizes laboratory protocols
Safe	Designed to support **data security and privacy** control requirements and standards, including GDPR, HIPAA and NIST. BD Synapsys™ is UL CAP and SOC 2 certified (U.S.)
	User activity is stored automatically, creating an **audit trail** to help support your accreditation, compliance and QA requirements

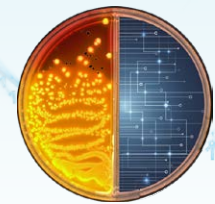# Transforming microbiology one step at a time
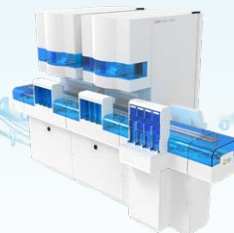
Laboratory workflow management		Analytics

Sample Labeling and Inoculation

Incubation and Imaging

AI Imaging Algorithms
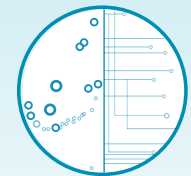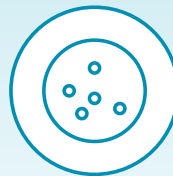
Powered by
**BD Synapsys™
Informatics Solution**

BD Kiestra™ InoqulA

▶ Continuous loading and unloading of samples

▶ Positive dispense verification for samples

▶ User prioritized sample processing

▶ Rolling bead technology

BD Kiestra™ ReadA

▶ Standardized incubation times and conditions

▶ High-resolution and standardized imaging

▶ Parallel processing of plates

▶ Assisted culture reading using intelligent algorithms

BD Kiestra™ Imaging Apps

▶ BD Kiestra™ Urine Culture App (UCA)

▶ BD Kiestra™ MRSA App

▶ Standardized image acquisition

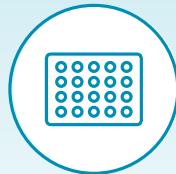▶ Batch release of no growth and non-significant growth samples within the UCA

BD Kiestra™
Standalone solutions

BD Kiestra™
Total Laboratory Automation

BD brings value to your laboratory through innovative technology and unmatched attention to detail

Result integration

Culture Reading

Identification Preparation

Result Reporting

BD Synapsys™ Informatics Solution

▶ Complete culture and patient overview

▶ Read cultures anywhere, anytime

▶ Manage workflow with a customized rules engine

▶ Workload management dashboard

BD Kiestra™ IdentifA

▶ Automated MALDI target plate preparation

▶ Precise colony picking

▶ Active mucoid strain detection, cutting and processing

▶ Unique layering technology

BD Synapsys™ Informatics Solution

▶ Timely reporting of actionable results

▶ Expert system based on CLSI or EUCAST rules

▶ Analytics and data-driven reports

▶ Benchmarking of results

Workflow Optimization Services for BD Kiestra™ Solutions
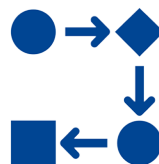
Educate, equip and empower

Workflow optimization services **educate**, **equip** and **empower** your microbiology laboratory throughout its automation transformation

Maximize the financial benefit from the investment in automation

Advance laboratory outcomes by designing processes with less waste and rework

Enhance laboratory operations by streamlining workflow

Implement a culture of continuous process improvement for sustained success

BD Kiestra™ delivers a timely implementation of your solution to help maximize your system's uptime, utilization and laboratory performance.

BD Kiestra™ offers comprehensive services that build upon and enhance your automation investment, giving you access to experienced teams of lean workflow consultants, project managers, application specialists and field service representatives.

Workflow optimization services to meet the needs of your laboratory

Essential

Have a full-time Lean and quality improvement team?

Take advantage of our Lean workflow recommendations to support your BD Kiestra solution.

- Baseline performance report and identification of high-level opportunities for improvement
- Custom visualization of automation in your laboratory
- Access to basic best practices for you to implement
- Basic training on workflow related data analytics
- Post-implementation assessment to occur within 6 months post go-live

Enhanced

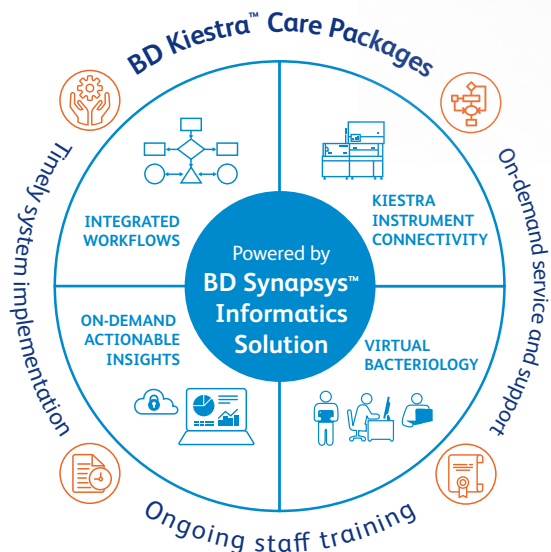**Have a capable team but need hands-on help?**

Experience a more tactile approach to solving workflow challenges together. Allow our experts to educate your team on Lean methodology to improve key metrics and performance indicators.

Contents of the Essential service, plus:
- Introductory Lean training and toolkit
- Custom improvement recommendations and action plan driven by a BD expert
- On-site expert led process improvement event
- Visual Daily Management (VDM) training and tools
- Quarterly Lean Process Health Chart(s)
- Routine coaching by a Lean expert with laboratory experience

Advance your laboratory through scalable, customized automation

BD Kiestra™ Standalone solutions

Barcoding and Inoculation	Incubation and Imaging	BD Kiestra™ Imaging Applications	Plate Interpretation and Workflow Management	MALDI-TOF Preparation	Report Results
BD Kiestra™ InoqulA	BD Kiestra™ ReadA	AI-developed applications	BD Synapsys™ Informatics Solution / BD Kiestra™ Urine Culture App	BD Kiestra™ IdentifA	BD Synapsys™ Informatics Solution

BD Kiestra™ Total Laboratory Automation

BD Kiestra™ Care Packages

Powered by **BD Synapsys™ Informatics Solution**

- INTEGRATED WORKFLOWS
- KIESTRA INSTRUMENT CONNECTIVITY
- ON-DEMAND ACTIONABLE INSIGHTS
- VIRTUAL BACTERIOLOGY
- Timely system implementation
- On-demand service and support
- Ongoing staff training

BD Kiestra™ Laboratory Automation Solutions

- ✓ Enhance laboratory operations
- ✓ Maximize financial efficiencies[1]
- ✓ Advance laboratory outcomes

References: 1. Croxatto A et al. Comparison of inoculation with the InoqulA and WASP automated systems with manual inoculation. *J Clin Microbiol*. 2015;53(7):2298-2307. **2.** Yue P, Zhou M, Zhang L, et al. Clinical Performance of BD Kiestra InoqulA Automated System in a Chinese Tertiary Hospital. *Infect Drug Resist*. 2020;13:941-947. Published 2020 Apr 1. doi:10.2147/IDR.S245173. **3.** Iversen J et al. Comparative evaluation of inoculation of urine samples with the Copan WASP and BD Kiestra InoqulA instruments. *J Clin Microbiol*. 2016;54(2):328-332. **4.** Klein S et al. Significant increase in cultivation of *Gardnerella vaginalis, Alloscardovia omnicolens, Actinotignum schaalii,* and *Actinomyces* spp. in urine samples with total laboratory automation. *Eur J Clin Microbiol Infect Dis*. 2018;37(7):1305-1311. **5.** Thomson RB Jr, McElvania E. Total Laboratory Automation: What Is Gained, What Is Lost, and Who Can Afford It? *Clin Lab Med*. 2019 Sep;39(3):371-389. doi: 10.1016/j.cll.2019.05.002. PMID: 31383263.

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