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Your guide to laboratory and pathology equipment in Europe

LAB BOOK

- Automation & Sample Processing
- Chemistry & Immunochemistry
- Hematology
- Pathology
- DNA
- Microbiology
- POCT
- IT
- Non-Diagnostic

2018

Vol.5



Atellica Solution* is a flexible, scalable automation-ready immunoassay and chemistry analyzers engineered to deliver control and simplicity so you can drive better outcomes. Experience the power of the Atellica Solution, featuring patented bidirectional magnetic sample transport technology, the flexibility to create over 300 customizable configurations, and a broad assay menu with proven detection technologies.

*Product availability will vary by country.

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Dear reader,

we are pleased to present the 5th edition of our European product guide "Labbook". Once again we compiled a broad as well as detailed overview of devices, software and accessories for the medical lab. The Labbook has grown in terms of size and of content – a clear indicator that in hospital and non-hospital labs alike the demand for targeted information is huge despite the fact that the market is highly fragmented and political support is sketchy at best.

The products in this year's Labbook cover all aspects of laboratory diagnostics: from clinical chemistry systems to innovative solutions for pathology, from handhelds for bedside diagnostics to fully automated and multi-disciplinary lab suites. In short: a comprehensive showcase of the industry.

However, we want to be more than a mere shopping guide: we want to offer our readers added value. Professor Norbert Gässler looks at the recommendations regarding venous blood sampling by the European Federation of Clinical Chemistry and the Latin America Confederation of Clinical Biochemistry. Since finally the important role of pre-analytics in lab medicine is widely acknowledged, international recommendations, including evidence and quality assessments, were issued.

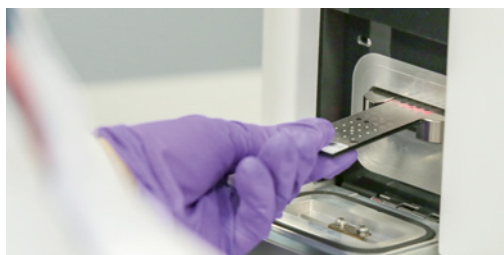
Our feature on the selection process for a lab information system (LIS) is another practical guide, aimed to support buyers. The authors provide a handy table with selection criteria that serve as starting point as well as guidance throughout the purchasing process.

Finally, and we don't tire of pointing this out: the Labbook is not only hard copy. For our digital database with products, feature articles and the e-paper version of the Labbooks past and present please visit www.labbook.eu and www.healthcare-in-europe.com. There you will also find the forms to request further information.

The manufacturers, the authors and the editorial team – we all look forward to receiving your feedback, be it praise, criticism or suggestions. We would like to know what you want to find in the next edition.

Enjoy reading and browsing.

Daniela Zimmermann **Dr Markus Neumann**



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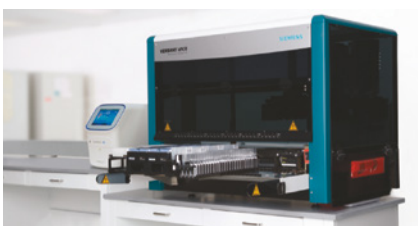
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Automation & Sample Processing

Sample Processing
Robotics
Automation

 **ASPLab**
Automation
Automated Sample Processing

 **BECKMAN
COULTER**

 **Assistent**[®]

 **DiaSys**
Diagnostic Systems

 **HORIBA**
Medical

 **inpeco**

 **Promega**

 **SARSTEDT**

 **SIEMENS**
Healthineers

 **Snibe**
Diagnostic

Sample Processing

SAMPLE PROCESSING

ASP Lab Automation – Bench-top Decapper Pluggo RH



Dimensions: 360 × 560 × 610 mm (h × w × d)

Sample throughput: Over 2,000 tubes per hour

Highlights: Pluggo RH decapper is a compact bench-top device that safely and efficiently removes original caps from blood specimen tubes.

- Avoids potential health risks from Carpel Tunnel Syndrome and aerosol contamination
- Tubes are loaded and decapped in analyzer racks
- Handles up to 15 racks each for input and output
- Available for many analyzer rack types
- Robust and simple design guarantees high reliability and uptime
- Smaller models available that handle single racks

ASP Lab Automation – Tube Sorter SortPro



Dimensions: 1,130 × 1,100 × 600 mm (h × w × d) for six sorting bins; + 200 mm for each two extra sorting bins

Sample throughput: Up to 2,000 tubes per hour

Highlights: The SortPro tube sorter is an economical automation device for the pre-analytics of small and high-volume labs.

- Early specimen identification and registration
- Fast presorting of specimens
- Optional Benefit-Package with powerful software tools enhancing efficiency within the lab
- Small and fast instrument, robust and reliable
- Bulk input and bulk output of specimens
- Freely configurable number of sort bins
- Processes all standard blood and urine tube types

Beckman Coulter – AutoMate 1250/2550



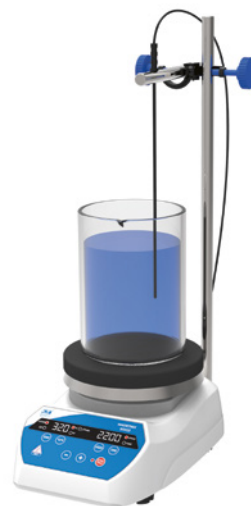
Aliquoter (1+1 aliquot): 700 primaries with 10 % aliquoted to a daughter tube (AutoMate 1250)
900 primaries with 10 % aliquoted to a daughter tube (AutoMate 2550)

Weight: 720 kg (AutoMate 1250/2550)

Dimensions: 1,625 × 2,560 × 1,115 mm (without recapper)
1,625 × 2,560 × 1,415 mm (with recapper)
(h × w × d)

Highlights: The AutoMate 1250/2550 family of pre- and post-analytical sample processors and sorting systems boosts the possibilities of the laboratory automation system by providing a fully integrated sample bank solution for long-term archiving. The AutoMate 1250/2550's archiving, retrieval for re-run, sample re-introduction and sample disposal allows for an easy workflow and sample management.

Hecht – Magnetic Stirrer



Dimensions: 248 × 110 × 156 mm (h × w × d)

Weight: 2.2 kg

Highlights:

- High performance magnetic stirrer with last run memory function, last settings are used on restart.
- The speed can be adjusted from 200 to 2200 rpm in steps of 10 rpm, the time can be adjusted from 1 to 999 minutes or continuous operation.
- Available in two variants: with heating plate of stainless steel or with heating plate of glass ceramic.
- A large display shows critical data, readily visible.
- The heating plate can reach 320° C / 608° F.
- Programmable pulse mode for thorough mixing is available.

Hecht – Programmable Rotating Mixer



Dimensions: 93 x 501 x 301 mm (h x w x d)
Weight: 6 kg

- Highlights:**
- The speed can be adjusted in steps of 1 rpm from 10 to 80 rpm.
 - The rotating mixer TR6 is suitable to mix blood samples, viscous substances and liquid-solid suspensions.
 - The tilt angle of the rolls is 3°.
 - Every roll is tool free detachable individually to hold vessels of different sizes.
 - Mode of operation is noiseless and continuous or with adjustable time from 1 to 99 minutes.
 - The microprocessor allows to program up to 9 protocols and the use of a pulse mode.

Sarstedt – Decapper DC 1200 / Recapper RC 1200



- Highlights:**
- Decapper DC 1200:**
- Automatic decapping of all tube diameters from 11 to 16 mm
 - Processes a variety of tube types in mixed operation
 - Sample pre-sorting for the decapping process is unnecessary
- Recapper RC 1200:**
- Automatic recapping of all tube diameters from 13 to 16 mm
 - Minimises the risk of exposure
 - Eliminates sample contamination
 - Archiving cap fits all tubes from 13 to 16 mm diameter
 - Automated decapping enabled

Efficient lab solutions: More than sorting 2,000 tubes/h

ASP SortPro

- Individual Workflow analysis
- Customized configuration
- Seamless LIS connection
- Optical tube type detection
- Identification of doublets
- Process management software



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Sample Processing

SAMPLE PROCESSING

Sarstedt – Bulk Loader BL 1200



Sample throughput: Up to 1,200 tubes/h

- Highlights:**
- Ideal in combination with any analytical platform
 - No sorting or handling required
 - Process any tube type of 80 to 110 mm length (with cap) and 11 to 16 mm diameter, including false bottom options
 - Suited for any sample type (serum / plasma, serum gel / plasma gel, EDTA, citrate, blood sugar, urine)
 - Integral ID module
 - Automatic sample accessioning
 - Customised sort rules to a variety of carrier types or bins
 - Safe, rapid and continuous operation without error

System range:

- BL 1200 – Bulk to Rack
- HCTS2000 MK2 – Bulk to Bulk

Sarstedt – Sorter DC/RC 900 Flex



Sample throughput: Up to 900 tubes/h

- Highlights:**
- Pre- and post-analytics in one system:
 - Processes any tube diameter from 11 to 16 mm
 - Compatible with most racks or carrier types
 - Online or offline operation
 - Opens tubes with push caps, stoppers and screw caps
 - Can be customised to sort by tube type, material (barcode) or test request
 - Closes tubes with universal archiving caps
 - Retrofitting of decapping or recapping module is possible
 - Recapping with screw caps for Sarstedt tubes with 13 or 15 mm diameter

Sarstedt – Sample Distribution System PVS 1625



- Highlights:**
- The PVS 1625 is a tailor made automation system for pre- and post-analytical processing of samples. It is capable to handle any kind of rack and tray type. As an open system, it is complementary to any analytical platform or can be used independently. Loading of unracked or racked sample tubes is via the Bulk Loader or in racks via the loading platform, which is suitable for closed and open tubes.

Full function pre- and post-analytical system

- Ideal in combination with any analytical platform
- Modular configuration according to customer needs with: Loading platform and / or Bulk Loader
- ID Module / Decapper / Recapper / Aliquoter / Sorter
- For all common tube types:
 - 13 – 16 mm diameter, 65 – 100 mm length
 - Compatible with most racks or carrier types

ROBOTICS

Siemens Healthineers – VersaCell X3 Solution



Dimensions: 1,520 × 1,780 × 1,040 mm (h × w × d)

Sample throughput: Up to 200 samples tubes/h

Power consumption: 800 W

Assays: Menu varies based on analyzers connected

- Highlights:**
- Advance workflow capabilities, streamline processes, and meet changing needs with agility – at a cost labs can justify. VersaCell X3 Solutions use robotics with dynamic STAT management to provide the optimal mix of chemistry and/or immunoassay analytics with one-touch sample management. Connect up to three Siemens' instruments including ADVIA 1800 Chemistry System, ADVIA Centaur XPT and/or IMMULITE Immu-noassay Systems, and Dimension EXL and RxL Max Integrated Systems.

Product availability varies by country.

Efficient lab solutions

A machine for automated registration and sorting of blood specimens is what will be added to your lab after ASP Lab Automation AG has finished the installation. But, you have purchased much more. To make an investment in sorting devices efficient, the device must be integrated perfectly into the laboratory workflow. The ASP team has sold hundreds of tube sorters to clinical labs and hospitals worldwide. With all these installations, the German Engineers have accumulated deep knowledge about the workflow in clinical labs. This experience is an integral part of every new installation.

The sales managers analyze the existing situation and find solutions to reach the labs targets for its investment. Optimization of the workflow using the advantages of the new automation device and its integration with the LIS are as important as the individual configuration of the new sorting device. This ability to integrate everything into the perfect solution is what makes ASP so special in providing efficient lab solutions.

Therefore, the latest generation of the ASP SortPro instrument is designed to face any kind of requirements by implementing strong software tools and a wide range of options for customization. SortPro can bulk sort a large variety of tubes, can fill specific analyzer racks, or can deliver tubes directly to track systems or analyzers. The SortPro can detect barcodes, cap colors, and tube types.

Once installed, the ASP SortPro will ensure that each specimen will be identified, registered in the LIS, and sorted by internal sorting criteria or input from the LIS. ASP SortPro selects and separates tubes for manual handling. Doublets are detected and can be handled individually. Depending on the individual application SortPro can handle up to 2,000 tubes per hour.

With the new graphical user interface, the software makes it easy to use the device. Administering and editing sorting rules allows the adaptation of the SortPro to changing requirements at any time. With provided extensive documentation and statistical tools, workflow and performance of the sorter can be controlled in detail. The SortPro operates basically unattended. In case user attention is required, the integrated process management sends SMS to operational staff. Tools for maintenance and service guarantee maximum availability while minimizing operating costs.

ASP SortPro does not only register and sort your specimens, but with comprehensive integration into your lab workflow, it constantly improves the efficiency of your lab. Starting in Autumn 2018, the improved new generation of ASP SortPro will be rolled out to customers worldwide.



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info@asplabauto.com · www.asplabauto.com



AUTOMATION

Beckman Coulter – Power Express

Dynamic inlet:	1,200 tubes/h
Centrifuges:	300 tubes/h (1), 600 tubes/h (2), 900 tubes/h (3), 1,200 tubes/h (4)
Decapper:	1,200 tubes/h
Aliquoter (1:1):	600 tubes/h



Highlights: Power Express is a high-throughput automated sample handling system that can process chemistry, immunochemistry, hematology and coagulation tubes. A four-lane track and intelligent sample handling helps reduce turnaround time (TAT), reduce errors and improve lab productivity. Power Express performs industry leading centrifugation, with the option for up to four centrifuges to match the capacity of the automation line at 1,200 tubes per hour, decapping/recapping, aliquoting, with refrigerated as well as ambient storage, finished with a specimen automated disposal unit, giving labs the ability to deliver rapid and dependable TATs to clinicians, thereby reducing errors and improving overall laboratory efficiency and productivity.

HORIBA Medical – HELO* Solution

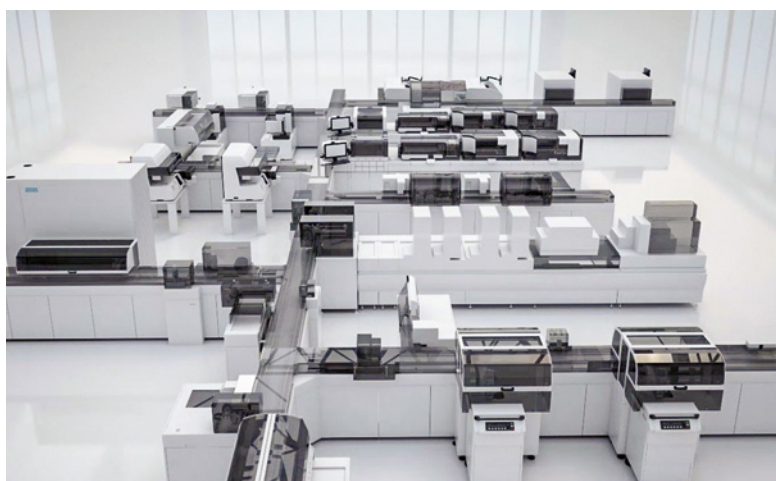


Highlights: HORIBA Medical has developed a new HELO* configuration thanks to a new Yumizen T6000 island shape. This compact solution allows to connect analyzers (Yumizen H1500/H2500 and Yumizen SPS options) on both sides of the same track. This innovative track configuration generates a very high result production capacity per square meter of floorspace.

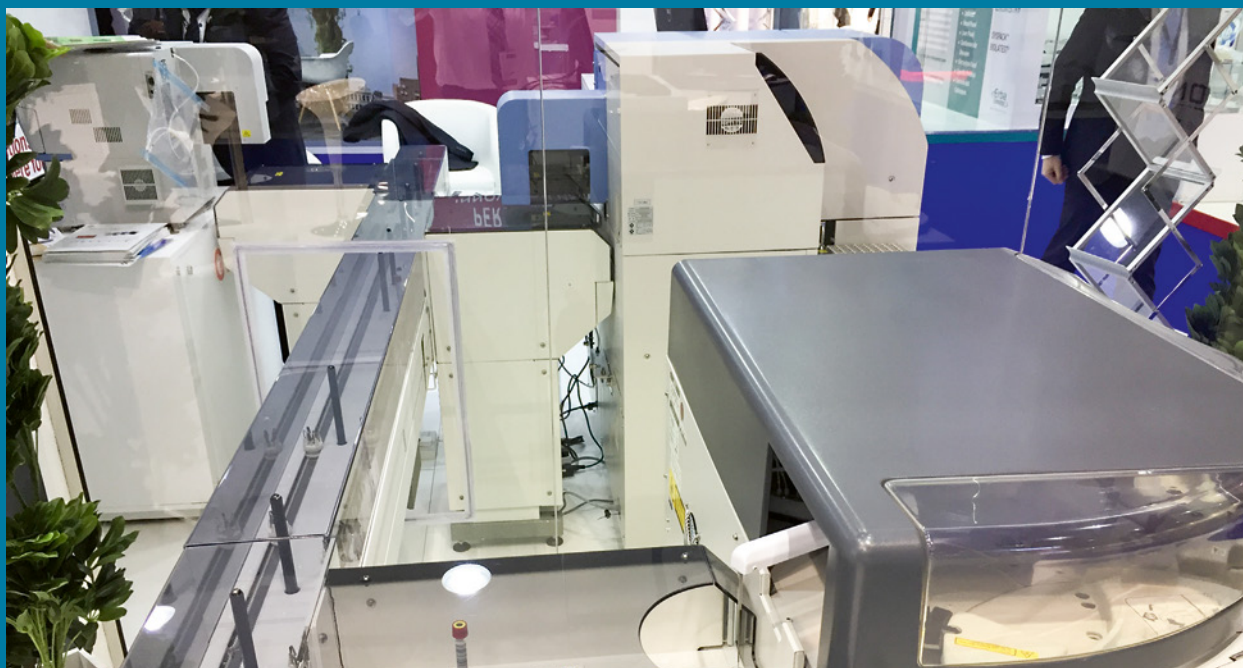
The HELO* Solution is therefore available in four different shapes (Linear, Angular, Workcell, Island) in order to match with many laboratory architectural constraints.

**HORIBA Evolutive Laboratory Organisation*

Inpeco SA – Total Laboratory Automation (TLA)



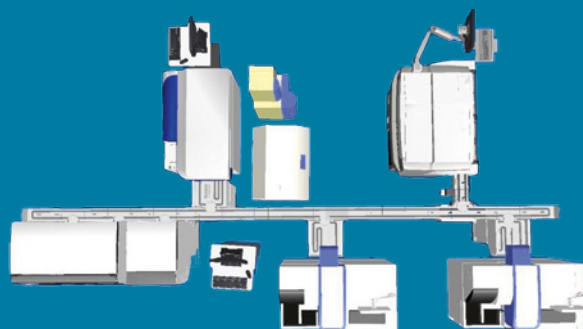
Highlights: FlexLab is the most open automation system capable of managing the complete process of a patient sample, from tubes check-in, through pre-analytical and post-analytical modules, that automates all manual routine tasks, such as identification, sorting, centrifugation, decapping, aliquoting, recapping, storage, disposing and retrieval. FlexLab has over 50 validated connections with the most common analyzers, for many specialties. FlexLab is a completely scalable system, that adapts to the specific laboratory current needs and is open for future integrations, as the lab evolves. It includes an integrated middleware solution, called Data Management Software, that receives patient results from analyzers, and sends the results to the Lab Information Systems.



BioMajesty JCA-BM6010/C connected to Thermo Fisher Sample Conveyor

Process optimization in IVD laboratories with DiaSys Laboratory Automation Solution

The DiaSys Total Laboratory Automation system (TLA) is an open, flexible and tailor-made solution for pre-analytical, analytical and post-analytical work. The pre-analytical part may consist of a tube loading module, centrifuge(s) and de-capper. Based on a high number of instrument interfaces and robotic modules users in laboratories can configure the tracking line according to their individual needs and expectations. Besides DiaSys' BioMajesty JCA-BM6010/C a large selection of immunoassay-, coagulation- and hematology-analyzers can be connected via bypasses for analytics. For post-analytical purposes a re-capper, a cold storage (up to 13.000 tubes) or tube unloading module (incl. retrieval option for re-testing) are available.



A true flexibility and expendability concept

The test ordering, sample routing and result management is controlled by a instrument manager software which is connected to the laboratory information system (LIS).



CONTACT

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Your benefits from Open Lab Automation

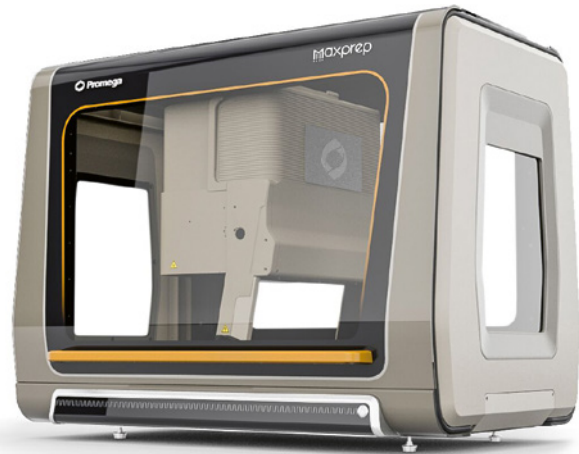
This concept leads to optimization of processes in the daily routine of IVD laboratories, consolidation of workplaces, reduction of manual work and errors as well as improved turn around time. ■

AUTOMATION

Promega – Maxprep Liquid Handler

Dimension: 1069 × 709 × 831 mm (w × h × d)
Weight: 98 kg
Sample throughput: 1–48 samples/hour; (2) 24 position Maxwell RSC 48 or (2) 16 position Maxwell RSC removable trays
Number of channels: 4
Assays: Promega Maxwell Kits

- Highlights:** Completes Nucleic Acid Purification System in combination with Maxwell RSC and Maxwell RSC 48
- Automated Maxwell sample preparation
 - Hands-free nucleic acid extraction on the Maxwell RSC 48 or RSC 16
 - Post-extraction sample preparation for quantitation, normalization and amplification setup using the Maxprep Liquid Handler
 - UV decontamination and barcode scanner



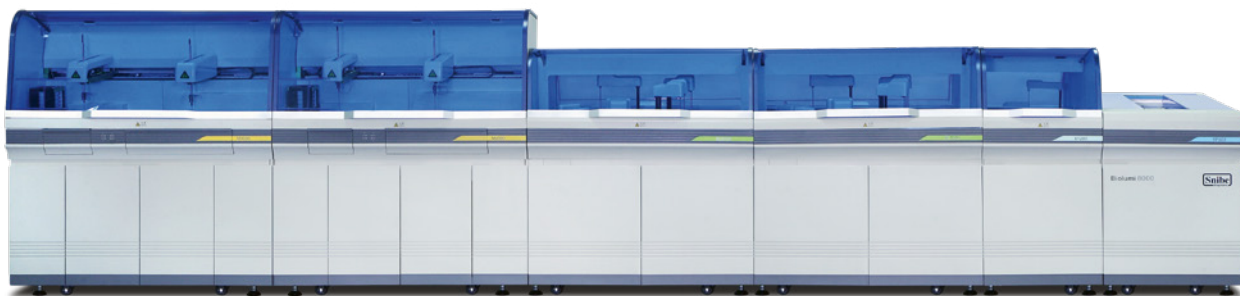
Siemens Healthineers – Aptio Automation



Highlights:

Aptio Automation combines intelligent technologies with Siemens workflow expertise in adaptable, multidisciplinary track designs with intelligent routing, single-sample flow and point-in-space sampling. Choose from a selection of pre- and post-analytical processing modules and automation-ready chemistry, immunoassay, hematology, hemostasis and specialty testing analyzers. Our experts perform data-driven simulations, optimization modeling and more to design and monitor your solution for ongoing productivity.

Snibe – Biolumi 8000



- Highlights:** Sample processing module
- Loading 280 samples at one time
 - Continuous loading and unloading samples during operation
 - Specific STAT channel

- Biochemistry module (B)
- 1,600 tests/hour
 - Clot detection, liquid level detection
 - Wavelength range 340 – 800 nm, detect 16 different wavelengths simultaneously

- Electrolyte module (E)
- 1,000 tests/hour
 - Clot detection, liquid level detection
- Immunoassay module (I)
- 280 tests/hour
 - Clot detection, liquid level detection

Experience the power of the **Atellica Solution**



Atellica® Solution:* Flexible, scalable, automation-ready immunoassay and chemistry analyzers engineered to deliver control and simplicity so you can drive better outcomes.



A bi-directional magnetic sample transport that is **10 times faster** than conventional sample conveyors



The new standard in sample management—revolutionary technology that gives **independent control** over every sample



An immunoassay analyzer that runs up to **440 tests per hour**,[†] the industry's highest productivity per square meter[‡]



Unprecedented flexibility with more than **300 customizable configurations** including L and U shapes

*Product availability will vary by country.

†Dependent on test mix.

‡Versus leading IVD companies.

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It takes a team

When instruments, assays and stakeholders work together to enhance the patient experience

By Deepak Nath, PhD, President, Laboratory Diagnostics, Siemens Healthineers



Clinical laboratories need to meet greater testing demands, improve efficiency, and deliver reliable, high-quality results, while at the same time, facing an increasing shortage of skilled employees and growing budget constraints. Both patient and physician satisfaction are frequently tied to the time it takes to receive lab test results. In a recent survey commissioned by Siemens Healthineers, about three-quarters of emergency medicine physicians and two-thirds of internists agreed that the turnaround time (TAT) of results drive physician and patient satisfaction. In addition, more than 60 percent of respondents reported that fast TAT provides high value to physicians. Siemens Healthineers brought to market the Atellica Solution, immunoassay and clinical chemistry analyzers for in vitro diagnostic testing, together with a comprehensive and expanding assay menu to deliver results that are timely and precise. The treatment of two particular patient conditions increasingly relying on reduced TAT are myocardial infarction and sepsis. Confidence in the test results is equally important.

Improving TAT without sacrificing quality of results

While institutional protocols influence turnaround time, ultimately, the speed at which labs deliver results is determined by the time it takes to produce a test result. Sometimes assays need to have longer incubation times for optimized performance. Prior to the Atellica Solution, the type of test and mix of tests could impact an analyzer's entire throughput and capacity to produce results in a given time. To accommodate this challenge, some laboratories devote designated analyzers and staff to process assays that require extended

analytical times, or STAT assays. Designed with input from such professionals, the Atellica Solution eliminates the need for dedicated specialty or STAT analyzers, and maintains high-quality results, while making the entire process faster and more efficient. The number of analyzers required to achieve the same throughput and turnaround time as current systems was reduced by 33 percent with the Atellica Solution. By reducing analyzers, laboratories free up lab space, avoid acquisition and operational costs, and free technicians previously needed to maintain the instruments to handle other higher value tasks. Additionally, independent sample management capabilities, bi-directional Atellica Magline Transport technology, and dual-ring incubation are helping laboratories to achieve faster turnaround times from 22 to 53 percent. This number is a significant benefit for the lab, and also for its potential impact on patient care.

The analytical time-to-result for the High-Sensitivity Troponin I (TnIH) assay on the Atellica Solution, when compared to the predicate system, decreased by 44 percent, with an analytical time of 10 minutes. Heart disease accounts for more than 31 percent of preventable deaths in the EU. Delivering the information clinicians need sooner helps clinicians determine the next steps in a patient's care plan or to exclude myocardial infarctions faster. In addition to the benefits the Atellica Solution affords, the high-sensitivity performance of the Atellica IM TnIH assay offers significantly improved precision supporting a low limit of quantitation, and the ability to detect smaller changes in a patient's troponin level as repeat testing occurs. This design affords clinicians greater confidence in the results with precision that provides the ability to measure slight, yet critical, changes to begin treatment.

Some other high sensitivity troponin assays are affected by clinical confounders, impinging on their ability to provide as accurate and reliable troponin results. Clinical confounders include hemolysis and biotin interference, which can affect accurate diagnosis of AMI. Hemolysis occurs in as many as one in 30 blood draws and requires a redraw of a patient blood sample, adding to the time a result can be delivered. Biotin, a widely utilized vitamin supplement, is a recognized interferent impacting a variety of assay architectures. The Atellica IM TnIH assay exhibits no interference with hemoglobin at up to 500 mg/dL and no interference with biotin at up to 3500 ng/mL. For comparison, a 5th generation troponin T assay may have false results when the sample includes hemoglobin over 100 mg/dL or biotin over 20 ng/mL. With the TnIH assay offering improved sensitivity and precision at the low end of the measuring range,

laboratorians can deliver results confidently and potentially reduce the time to diagnosis leading to faster treatment.

Sepsis is another diagnosis that calls for both speed and accuracy. Sepsis can lead to tissue damage, organ failure, amputations, and death if not diagnosed and treated promptly. Early diagnosis and treatment of sepsis is associated with better patient outcomes. The analytical time-to-result for the Atellica IM BRAHMS PCT Assay, when compared to the predicate system, decreased by 53 percent, with an analytical time of 18 minutes.

Overcoming stakeholder concerns to obtain buy-in can equate to better patient outcomes

Detecting the presence of disease states sooner arms clinicians with the data they need to properly triage patients faster. However, implementing a change in menu or instruments can be met with hesitation from stakeholders, rather than enthusiasm, especially if the change is significant or requires an adjustment to existing protocols or baselines. Educating physicians, pathologists and other stakeholders on the values that new assays deliver is one challenge labs must overcome when considering introducing new assays to the testing menu. The good news is the majority of stakeholders agree that keeping pace with technological advancements is critical to driving better patient outcomes.

When asked about the impact of the laboratory on the patient experience, physicians and internists widely agree that investment in laboratory technologies is important. More than three-quarters of doctors and lab directors agreed that labs play a vital role in healthcare systems, and that they are a critical component for patient diagnosis and treatment. Further, more than half of the surveyed physicians and internists noted that investments in lab technology could be very impactful on potentially improving diagnoses. About half of physicians and internists thought it could also be very impactful on improving patient safety and patient outcomes.

Engaging stakeholders early in the discussion can help identify points of confusion or objection. Armed with relevant supporting evidence, laboratories can demonstrate how new lab technology and assays can impact clinicians' capabilities and decisions, and expand precision medicine to deliver a better patient experience. Focusing on outcomes that matter to stakeholders and decision-makers during these discussions, such as patient and physician satisfaction and improved care, showcases direct benefits of technology and assay investments. Emerging evidence also indicates that improved laboratory diagnostics can indirectly benefit hospitals by enhancing reputation and revenue: Test results help clinicians determine whether a patient is critical and needs to stay for further



observation or whether a patient is healthy enough to return home. With the right assays, freeing beds sooner for other patients could positively impact patient experience, efficiencies in the healthcare system, and institutional revenue.

We can take for example, a cardiac emergency. Overall, cardiovascular disease is estimated to cost the EU economy €210 billion a year. Emergency departments that remain crowded with people who aren't having a cardiac emergency may slow down the diagnosis and treatment of those who really need care. The prevalence rate of non-cardiac chest pain is estimated to be more than 50 percent of all chest pain cases presenting at the emergency department. The majority of the patients seeking care due to chest pain are admitted for in-hospital cardiac "rule out" observation, yet just one-third of the cases are found to be ischemic heart disease.⁸ In this instance, expanding precision medicine with assays such as TnIh for acute

myocardial infarction brings measurable benefits for hospitals. The ability to diagnose specific diseases earlier and accurately helps improve the standard of care for patients experiencing heart attacks and chest pain symptoms.

In sum, the instruments and assays found in the laboratory can improve outcomes that matter to many stakeholders. It is often the responsibility of the lab to lobby for upgrades, but all stakeholders should be engaged and educated on the benefits of such advancements. When factors such as the potential revenue impact, demonstrable productivity enhancements, reduction in

operational cost, or concerns about impact to existing protocols are addressed early in the process everyone in the health system wins – perhaps, most importantly, the patients. Laboratories might wish to consider the ways the Atellica Solution and its assays can help provide measurable results and align with their most important performance indicators. ■



The Reference Institute for Bioanalytics

EQUAS MADE IN GERMANY



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DIN ISO 17025



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Drug Testing
Urine Screening
Rapid Testing
Research Use Only





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REAGENTS & INSTRUMENTS




Value from Innovation




















Excellence in Science







CLINICAL CHEMISTRY

Alsachim, a Shimadzu group company – DOSIMMUNE

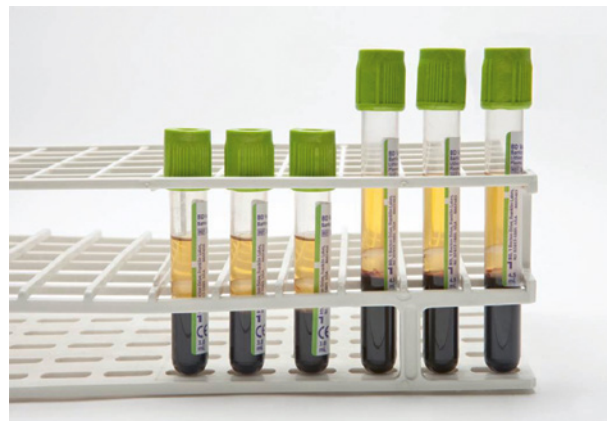


Highlights: Immunosuppressants in whole blood for LC-MS/MS

DOSIMMUNE is a reagent kit based on LC-MS/MS analytical method for the quantification of immunosuppressant drugs in whole blood: Cyclosporin A, Sirolimus, Everolimus, Tacrolimus.

DOSIMMUNE is a turnkey diagnostic device for the rapid and multiplex assay of four immunosuppressant drugs, thanks to inhouse production of stable isotope-labelled internal standards. This multiplex method allows pharmacological therapeutic monitoring of patients treated with immunosuppressants.

BD Vacutainer Barricor Blood Collection Tube



Dimensions: 13 x 75 mm / 13 x 100 mm
3 – 5,5 mL volume

Highlights:

- BD Barricor is a single-use plastic evacuated tube with a mechanical separator. This technology delivers a leading edge collection and analytical process by eliminating separator artefacts that may interfere with analyte testing and that could lead to instrument downtime.
- This innovation helps deliver the highest diagnostic quality and patient care.
- BD Barricor delivers a faster time-to-result for all patients with no clotting time and a reduction in centrifugation time of up to seven minutes.

Beckman Coulter – AU5800 Series



Dimensions: 1,260 x 2,600 x 1,580 mm (h x w x d)
Weight: 1,070 kg
Sample throughput: 2,000 – 9,800/h
Power consumption: 200 – 240 W

Highlights: The AU5800 series represents the highest throughput and fastest chemistry analyzers in the AU family. With true random-access capabilities and a throughput ranging from approximately 2,000 tests up to 9,800 tests per hour, the AU5800 is available in four different scalable models, positioned for the high-volume core hospital laboratory to the ultra-high volume commercial laboratory market segments.

Beckman Coulter – DxC700 AU Chemistry Analyzer



Dimensions: 1,300 x 1,250 x 890 mm (h x w x d)
Weight: 460 kg
Sample throughput: 800 – 1,200/h
Power consumption: 200 – 240 W

Highlights: DxC 700 AU is Beckman Coulter's latest analyzer within an extensive chemistry portfolio. The DxC700AU harnesses two key market demands and unifies them within one powerful laboratory solution:

- **Simplicity:** Experience the intuitive software, optimized workflow and ergonomic design
- **Reliability:** Elevate productivity through uptime, fast turnaround time and minimal maintenance



DID YOU KNOW

70 patients worldwide every second have diagnostic samples collected with BD Vacutainer specimen collection products.



BD life sciences – Preanalytical systems

See the total value

For almost 70 years, BD has advanced the science of specimen collection that has helped enable laboratory tests to become the foundation for 70 percent of all medical decisions.*

Today, the BD Vacutainer product family is a gold standard in sample collection. That is why leading hospitals rely upon it to enhance sample quality and provide a safe environment for nurses, phlebotomists and other caregivers, avoiding needlestick injuries. These products – backed by unrivaled customer support and training – help hospitals and laboratories every day to enhance patient safety and drive lab productivity and workflow by reducing retests, recollects and instrument downtime. ■

*The Lewin Group (2005). *The Value of Diagnostics: Innovation, Adoption, and Diffusion into Healthcare*. Published for the Advanced Medical Technology Association. Falls Church, VA: Lewin Group; 2005:1.



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ABOUT BD

BD is one of the largest global medical technology companies in the world and is advancing the world of health by improving medical discovery, diagnostics and the delivery of care. The company supports the heroes on the frontlines of health care by developing innovative technology, services and solutions that help advance both clinical therapy for patients and clinical process for health care providers.

BD and its 65,000 employees have a passion and commitment to help improve patient outcomes, improve the safety and efficiency of clinicians' care delivery process, enable laboratory scientists to better diagnose disease and advance researchers' capabilities to develop the next generation of diagnostics and therapeutics.

BD has a presence in virtually every country and partners with organizations around the world to address some of the most challenging global health issues. By working in close collaboration with customers, BD can help enhance outcomes, lower costs, increase efficiencies, improve safety and expand access to health care. In 2017, BD welcomed C. R. Bard and its products into the BD family. For more information on BD, please visit bd.com.

CLINICAL CHEMISTRY

Beckman Coulter – AU480 Chemistry Analyzer



Dimensions: 1,205 × 1,450 × 760 mm (h × w × d)
Weight: 420 kg
Sample throughput: 400 – 800/h
Power consumption: 100 – 240 W

Highlights: The AU480 is ideal as a primary chemistry analyzer for small- to medium-sized hospitals and laboratories, or as a dedicated specialty chemical or STAT analyzer for larger institutions. With random access throughput of up to 400 photometric tests per hour (up to 800 with electrolytes), 63 onboard parameters tests and user-definable sample handling options, the AU480 delivers efficiency for all your lab needs.

BioSystems – BA400



Sample throughput: 400 test/hour without ISE
No. of parallel samples: 320 test/hour ISE module
Assays: Colorimetry, turbidimetry, ISE
Dimensions: 1,200 × 1,258 × 720 mm (w × h × d)
Power Consumption: 500 VA

Highlights:

- Minimum user maintenance
- Optical systems based on LED technology that assures unlimited lifetime avoiding lamp replacement and improving sensitivity
- Photometric range up to 3.5 Abs and optical resolution of 0.0001 Abs
- Capacity up to 135 sample positions (90 samples with barcode)
- 88 cooling reagents on board (5–8°C) by 20 and 60 mL dedicated reagent bottles
- Easy STAT samples positioning
- Non fixed positions for samples, control, calibrator nor STAT
- Barcode readers for sample and reagents

BioSystems – BA200



Sample throughput: 200 tests/hour
No. of parallel samples: 267 tests/hour with ISE
Assays: Colorimetry, turbidimetry, ISE
Dimensions: 1,077 × 680 × 690 mm (w × h × d)
Power Consumption: 260 VA

Highlights:

- STAT and Routine Laboratories Benchtop Random Clinical Chemistry Analyzer
- Dynamic baseline with SMART LED Technology
- High reagent and sample capacity (88 positions), the highest grade in flexibility
- Barcoded dedicated reagents
- Highly accurate dispensing
- 120-cuvette rotor with washing station
- Compact system with low maintenance
- Real 200 t/h, even with bi reagent reactions

BioSystems – A15



Sample throughput: 150 tests/hour
Assays: Colorimetry, turbidimetry
Dimensions: 840 × 615 × 670 mm (w × h × d)
Weight: 45 kg
No. of channels: 48 samples and 30 reagents (20 refrigerated)

Highlights:

- Random access automatic analyzer
- Fully open system with customized filter configuration and unlimited external applications
- Improved reagent stability due to the new cooling system
- Maximum flexibility in samples and reagent loading (primary tubes and sample cups) and reagent configuration
- Continuous loading of samples during working session (STAT samples) without stopping the analyzer
- Real prozone (antigen excess) and substrate depletion detection
- Automatic sample pre- and post-dilution

DiaSys Diagnostic Systems – BioMajesty JCA-BM6010/C



No of channels: 45
Assays: 55
Sample throughput: 1,200 samples/h
Dimensions: 1,220 × 1,108 × 850 mm (h × w × d)
Weight: 450 kg

Highlights: BioMajesty JCA-BM6010/C is designed to increase the performance of medium-sized laboratories. Throughput of up to 1,200 tests/hour, up to 45 reagent and 84 sample positions guarantee flexibility in everyday use. It handles a full menu of clinical chemistry assays as well as Na, K, Cl determination by indirect ISE. The possibility to connect the device to a sample conveyor system offers a complete automation solution and the consolidation of clinical chemistry with immunology and coagulation testing.

DiaSys Diagnostic Systems – respons910



No of channels: 30
Assays: 63
Sample throughput: up to 150 samples/h
Dimensions: 600 × 600 × 670 mm (h × w × d)
Weight: 60 kg

Highlights: respons910 is a fully-automated bench top analyzer for maximum efficiency. High on-board capacity of 30 methods and 30 sample positions combined with a throughput of 150 tests/h offers the flexibility for everyday use. A STAT port allows loading of emergency samples at any time. High-quality clinical chemistry and immunoturbidimetric tests from DiaSys round off the respons910 system.

Diatron – Intelligent Walk Away Chemistry with P500



Sample throughput: 300 tests/h, 480 with ISE
Dimensions: 900 × 660 × 620 mm (h × w × d)
Weight: 115 kg

Highlights:

- Bench top, fully automated Clinical Chemistry system
- Advanced Windows-based software
- Uninterrupted workflow, enhanced walk-away operation and remote access diagnostics
- Full range of barcoded reagents, controls and calibrators

FUJIFILM – DRI-CHEM NX700



Sample throughput: 190 samples/h
Dimensions: 500 × 380 × 410 mm (w × d × h)

Highlights:

- Dri-Chem based Clinical Chemistry Analyser
- 31 Test Parameter – unit-use
- Intuitive and simple operation
- No calibration needed by use of QC-card
- Immediate start up time – no preparation delay
- Maximum of five specimen in one operation
- Real walk-away system – consumables loaded
- Accurate and reliable results from field-proven dri-chem technology

CLINICAL CHEMISTRY

FUJIFILM Wako – Autokit CH50 Assay



Assays: Quantitative determination of total complement activity (CH50) in human serum

- Highlights:**
- In vitro diagnostic homogeneous liposome immunoassay
 - Applicable to automated analyzers
 - Precise and accurate
 - Stable, extended calibration stability
 - Good correlation with Mayer's hemolytic method

Genrui – Auto Chemistry Analyzer GS480A



Sample throughput: 400 tests/h
Dimensions: 1,100 × 1,120 × 810 mm (w × h × d)
Weight: 210 kg

- Highlights:**
- Fully automated system with random access and STAT
 - 24-hour refrigerated reagent compartment
 - 9-step wash station with alkaline cleaning and hot water
 - 105 sample positions and 90 reagent positions
 - Grating optical system with 13 wavelengths (340–850 nm)
 - Liquid level detection, collision protection and depth auto-adjustment
 - Pre- and post-dilution and rerun for sample
 - Intuitive software with simple operation
 - Flexible connection with LIS

Genrui – Auto Chemistry Analyzer GS300 Plus



Sample throughput: Up to 240 tests/h
Assays: Up to 58 items online
No. of channels: 81 reusable cuvettes
No. of parallel samples: Large capacity with 60 position
Dimensions: 880 × 570 × 650 mm (w × h × d)

- Highlights:** The GS300Plus is a bench-top chemistry analyzer with high efficiency and large capacity. We provide a much friendly work station.
- It delivers you accurate result, streamline your workflow and do it with greatest of ease.
 - Highlights as following:
 - Up to 240 tests/hour
 - Support 58 maximum online items
 - 81 reaction positions
 - Minimum reaction volume: 150ul
 - 8 wavelengths with filters
 - One press to finish all parameter setting
 - Support LAN and Ethernet RJ45

Greiner – VACUETTE CAT Serum Fast Tube



- Highlights:**
- Tube combines the speed of a plasma tube with the properties of serum
 - Shorter preanalytical process
 - Full coagulation in just 5 minutes
 - Improved turnaround time
 - Blood collection can be performed shortly before transport of the blood samples
 - Quicker lab results with on-site analysis

Mindray – BS-240Pro Clinical Chemistry Analyzer



Sample throughput: Constant 240 t/h, up to 400 t/h with ISE
Dimensions: 860 × 550 × 660 mm (w × h × d)
Weight: 115 kg

- Highlights:**
- Constant throughput with 240 photometric t/h, up to 400 t/h with ISE module
 - Large and flexible capacity: up to 100 sample/reagent positions (50 fixed + 50 interchangeable)
 - Reduced reagent consumption: 100 µL minimum reaction volume
 - Intelligent probe with liquid level detection, V&H collision detection, inventory monitoring, reagent pre-heating and optional clog detection
 - Grating photometer with 12 wavelengths, dual-diaphragm and dual-lens
 - HbA1c smart-sampling function, automatic hemolysis

Mindray – BS-480 Clinical Chemistry Analyzer



Sample throughput: Constant 400 t/h, up to 560 t/h with ISE
No of parallel samples: Up to 78 on-board chemistry tests
Dimensions: 1,185 × 1,150 × 710 mm (w × h × d)
Weight: 300 kg

- Highlights:**
- Discrete, random access, fully automated
 - Constant throughput with 400 photometric t/h, up to 560 t/h with ISE
 - 24-hour on board refrigerated reagent compartment at 2~10 C
 - Reusable cuvettes with auto-washing station
 - Two independent mixing stirrers
 - Clot detection, automatic probe cleaning, liquid level detection & collision protection (V&H)
 - Reversed grating system with 12 wavelengths (340~800nm)
 - Pre-dilution and post-dilution for sample
 - Built-in barcode scanner
 - Bi-directional LIS interface

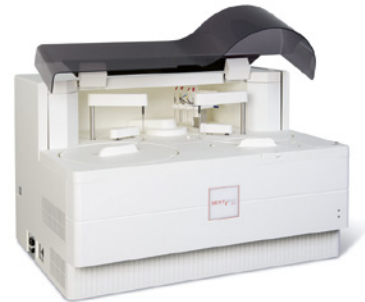
Mindray – BS-800M Clinical Chemistry Analyzer



Sample throughput: Constant 800 t/h, up to 1,200 t/h with ISE
No of parallel samples: Up to 68 on-board chemistry tests
Dimensions: 1,600 × 1,200 × 1,015 mm (w × h × d)
Weight: ≤ 450 kg for analytical unit, 150 kg for SDM

- Highlights:**
- Modular system: flexible connection
 - HbA1c smart sampling, automatic hemolysis
 - Accurate: high pipetting precision, coolant circulation reagent refrigeration direct solid-heating system, effective mixing unit and intelligent clot detection
 - Innovative: reagent bubble detection, dot light source and water quality monitor
 - Cost-efficient: large capacity with SDM racking system, 100 µL minimum reaction volume, one key STAT, continuous reagent loading and unloading
 - Original calibrators with traceability

Sentinel – SENTiFIT270 (Sysmex)



Sample throughput: Up to 270 samples/h
Dimensions: 625 × 870 × 670 mm (h × w × d)
Weight: 120 kg
Assays: Fecal Immunochemical Test
 Calprotectin Test

- Highlights:**
- The SENTiFIT270 is a fully automated clinical-chemical system. It has been specially developed to measure the SENTiFIT pierceTube for quantitative determination of occult faecal haemoglobin.
- Continuous reloading of the racks during measurement
 - Cooling the reagents for permanent storage in SENTiFIT 270
 - Measure up to 1,250 tests without changing the reagent
 - Automatic warning of deviation of the fluid level
 - Integrated sensor prevents blocking of the sample needle
 - Barcode reader for reagents

IMMUNOCHEMISTRY

Beckman Coulter – Anti-Mullerian Hormone (AMH)



Highlights: The measurement of circulating anti-Mullerian hormone (AMH) has been applied to a wide range of clinical applications. The Access AMH assay features convenient transition to automated testing through consistent and standardized results with Beckman Coulter's AMH Gen II assay improve support of fertility assessment through increased sensitivity and precision at the low end of the analytical measuring range. Today, its use is mainly based on its ability to reflect the number of antral and pre-antral follicles present in the ovaries (the ovarian reserve).

Beckman Coulter – UniCel Dxl 800 Access Immunoassay System



Dimensions: 1,700 × 1,710 × 970 mm (h × w × d)
Weight: 630 kg
Sample throughput: Up to 400 tests/h
Assays: > 50 preprogrammed, bar-coded immunoassay methods

Highlights: The UniCel Dxl 800 has exceptional throughput, proven chemiluminescent technology and assay protocols similar to other analyzers in the Beckman Coulter family – so you can simplify and automate your immunoassay testing. The UniCel Dxl 800 immuno-assay system allows laboratories to decrease process steps and improve turnaround time – with ease of use.

Beckman Coulter – Vitamin D Assay



Highlights: Access 25(OH) Vitamin D Total is a new assay that will expand the Access Bone Metabolism portfolio on the UniCel Dxl and Access 2 systems. The assay is standardized to the NIST-Ghent ID-LC-MS/MS Reference Method Procedure (RMP) and provides excellent stability and reproducibility. Features include a unique, opaque reagent pack designed to prevent light-induced reagent degradation; convenient assessment of deficient populations through a broad dynamic range; and speed and flexibility through instrumentation options (available on Beckman Coulter's Access 2 and Dxl immunoassay platforms).

Beckman Coulter – phi (Prostate Health Index)



Highlights: phi (Prostate Health Index) is an index of three tests and combines the power of those tests into one answer or phi score. The Prostate Health Index is an aid in distinguishing prostate cancer from benign prostatic conditions, for prostate cancer detection in men aged 50 years and older with total PSA ≥ 4.0 to ≤ 10.0 ng/mL, and with digital rectal examination findings that are not suspicious for cancer. Prostatic biopsy is required for diagnosis of cancer.

DRG Instruments – DRG:HYBRiD-XL



- Sample throughput:** 40 tests per run
No of parallel samples: 40
Assays: Immunoassay and Clinical Chemistry
Dimensions: 586 × 608 × 635 mm (h × w × d)
Weight: 52 kg
- Highlights:** This unique technology allows the simultaneous measurement of immunoassays and clinical chemistry parameters in one sample: TSH receptor Ab, Anti-tTG (Transglutaminase), Anti-DGP (Gliadin), Calprotectin, 17-OH Prog., Free Testosterone, Renin, Aldosterone, 25-OH Vitamin D, Hcpidin-25 and more

Fujirebio – LUMIPULSE G1200



- Sample throughput:** 120 tests/h
Time to first result: 30 min
Sample capacity: Up to 100 samples
Reagent capacity: 504 tests on board
Dimensions: 1,450 × 1,200 × 800 mm (h × w × d)

- Highlights:** A compact, robust and reliable fully automated chemiluminescent enzyme immunoassay analyzer. The LUMIPULSE G1200 offers optimized reagent and consumables handling, true random access, and a constant throughput regardless of the assay format or combination. The unique mono test cartridge eliminates open reagent bottle stability concerns. It comes with the broad menu of routine and unique Lumipulse G biomarkers and is fully compatible with laboratory automation systems (LIS).

Fujirebio – LUMIPULSE G600II



- Sample throughput:** 60 tests/h
Time to first result: 35 min
Sample capacity: Up to 36 samples (incl. 3 priority specimens)
Reagent capacity: 112 tests on board
Dimensions: 642 × 890 × 725 mm (h × w × d)

- Highlights:** A fully automated benchtop chemiluminescent enzyme immunoassay analyzer. The LUMIPULSE G600II offers optimized reagent and consumables handling, true random access, and a constant throughput regardless of the assay format or combination. The unique mono test cartridge eliminates open reagent bottle stability concerns. It comes with the broad menu of routine and unique Lumipulse G biomarkers.

Sarstedt – ELISA Plates / Micro test plates for immunoanalytics



- Highlights:** One of the analyses most commonly used is the Enzyme-Linked Immunosorbent Assay (ELISA). With this method, even the smallest concentrations of a range of substances (proteins, peptides, antibodies, hormones etc.) can be detected and quantified from complex solutions.

IMMUNOCHEMISTRY

Siemens Healthineers – IMMULITE 2000 XPI



Sample throughput: Up to 200 tests/h

Highlights: The IMMULITE 2000 XPI Immunoassay System combines allergy and specialty testing with routine immunoassay testing. It features a wide-ranging menu, 90-day onboard reagent stability, and advanced software and hardware to handle the many testing challenges that labs face. The IMMULITE 2000 XPI system is a continuous, random access analyzer with proven reliability and easy-to-use software that allows laboratories to improve their testing capacity.
Product availability varies by country.

Siemens Healthineers – ADVIA Centaur XPT & CP System



Sample throughput: Up to 240 tests/h (XPT)
Up to 180 tests/h (CP)

Highlights: The ADVIA Centaur XPT Immunoassay System is engineered to provide timely, reliable results with continuous operation to meet the workloads of the most demanding laboratories. It is among the highest-throughput immunoassay systems available. The ADVIA Centaur CP Immunoassay System is a mid-volume, high-throughput bench top system. Both systems use advanced Acridinium Ester technology that can be tailored to meet different diagnostic needs.
Product availability varies by country.

IMMUNOASSAYS

Beckman Coulter – ACCESS hsTnI



Highlights: The Access hsTnI assay provides the advanced diagnostic capabilities necessary for today's clinical laboratory. Access hsTnI assay offers true high sensitivity performance to detect at-risk patients earlier and discharge non-acute patients faster by delivering the optimal precision, clinical sensitivity and specificity necessary to aid in the diagnosis and management of acute myocardial infarction (AMI)

Beckman Coulter – Access 2 Immunoassay System



Dimensions: 500 x 900 x 610 mm (h x w x d)
Weight: 97 kg
Sample throughput: Up to 100/h
Assays: > 50 pre-programmed, bar-coded immunoassay methods

Highlights: Maximize your lab's productivity with the Access 2 Immunoassay System, a powerful and reliable immunoassay analyzer featuring a space-saving design, user-friendly features and a complete menu of more than 50 tests. The Access 2 contains the robustness of a reference laboratory immunoassay analyzer in the convenient size of a bench-top system, providing greater control over performance, reliability and speed without sacrificing valuable laboratory space.

Beckman Coulter – Access Active B12



Highlights: The Access Active B12 is Beckman Coulter's newest addition to an already comprehensive menu for anaemia disease-state management. With the largest measuring range on the market, fastest time to first result and standardization to WHO International Standard (IS) 03/178, the Access Active B12 delivers a better solution over other methods for Total B12 testing. While traditional serum B12, testing measures the entirety of circulating B12 only the Active B12 assay measures the biologically active form. A growing body of evidence suggests that when used as screening or resolving test, Active B12 provides a more reliable and earlier indicator of B12 deficiency.

FUJIFILM Wako – μ TASWako i30



Dimensions: 520 × 550 × 600 mm (w × h × d)
Weight: 71 kg
Sample throughput: 25 tests/h
Assays: AFP/AFP-L3, DCP

Highlights:

- Electrokinetic Analyte Transport Assay (EATA)
- High sensitive fluorescence detection
- Assay precision less than 3% CV for AFP-L3
- Increased sensitivity of liver cancer (HCC) detection by combined use of AFP, AFP-L3 and DCP
- Unique system to calculate the GALAD score (Gender, Age, AFP-L3, AFP, DCP) for outstanding performance regarding early HCC recognition
- Improved chance of detecting HCC early during surveillance of patients at risk

Genui – Automatic Specific Protein Analyzer



Sample throughput: 60 tests/h
Assays: 22
Dimensions: 620 × 520 × 620 mm (w × d × h)
Weight: 60 kg

Highlights:

- Fully-automatic specific protein analyzer
- Latex Nephelometry
- 60 samples per hour
- 1-click, multi-results
- Efficient and less cost
- User-friendly software and UI design
- Whole blood samples accepted
- NGSP certified for HbA1c testing
- Your right hand in daily laboratory work

Lifotronic – eCLA8000 Electro ECLIA System

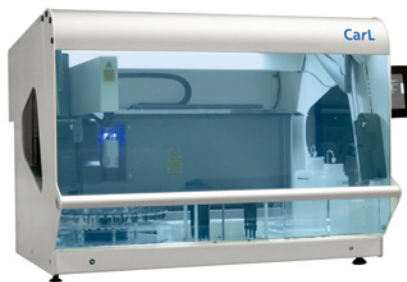


Highlights: Chemiluminescence immunoassay (ECLIA) System

- Throughput: 85 t/h
- 10 reagent channels
- 30 sample positions
- 100 reaction positions
- 10 mins for first sample result
- Auto calibration and QC (2 level)
- Reagent & sample liquid level detection with clotting test
- T3, T4, TSH, PCT, HCG, NT-proBNP, more items are coming

IMMUNOASSAYS

MIKROGEN – CarL – Complete automation of recomLine strip assays



Assays: recomLine strip assays
No of parallel samples: 44
Weight: 70 kg (plus all-in-one PC)
Dimensions: 1000 × 650 × 600 mm (w × h × d)
 (plus all-in-one PC)

- Highlights:**
- Walk-Away: Full automation from sample to scanning
 - Safe: Barcode identification and LIS connectivity
 - Flexible: Combination of different strip assays
 - Space saving: Integrated camera for scanning
 - Minimised dead volume: To save precious reagents
 - No cross-contamination: Disposable tips for sample preparation
 - Minimal maintenance: No daily startup routine and pump calibration required
 - Liquid level detection: Pressure sensing technology for samples and reagents
 - User-friendly: Guided operation via touch screen

Mindray – CL-6000i Chemiluminescence Immunoassay System



Sample throughput: Up to 480 tests/h
No of channels: 36
Assays: 63
Dimensions: 2,150 × 1,166 × 1,300 mm (w × h × d)
Weight: 580 kg

- Highlights:**
- Industrial highest throughput: up to 480 tests per hour
 - Measurement principle: enhanced ALP-AMPPD method
 - Reagent carousel: 36 reagent positions with non-stop refrigerating
 - Sample handling: up to 300 samples can be loaded in one batch, sample loading and offloading continuously by sample racks, fast prioritizing STAT samples
 - Continuously loading of reagents, substrate, cuvettes, wash buffer and waste bags
 - Zero daily maintenance

Mindray – CL-1200i Chemiluminescence Immunoassay System



Sample throughput: Up to 180 tests/h
No of channels: 25
Assays: 63
Dimensions: 1,400 × 760 × 600 mm (w × h × d)
Weight: 225 kg

- Highlights:**
- High throughput up to 180 tests per hour
 - Benchtop analyzer
 - Large reagent capacity with 25 positions
 - Sample rack system
 - STAT lane
 - Single cuvette system
 - Dual substrate and automatically switch the empty one

Mindray – CL-2000i Chemiluminescence Immunoassay System



Sample throughput: Up to 240 tests/h
No of channels: 36
Assays: 63
Dimensions: 2,150 × 1,020 × 1,200 mm (w × h × d)
Weight: 750 kg

- Highlights:**
- High throughput: up to 240 tests per hour
 - Measurement principle: enhanced ALP-AMPPD method
 - Reagent carousel: 36 reagent positions with non-stop refrigerating
 - Sample handling: up to 300 samples can be loaded in one batch, sample loading and offloading continuously by sample racks, fast prioritizing STAT samples
 - Continuously loading of reagents, substrate, cuvettes, wash buffer and waste bags

Mindray – CL-1000i Chemiluminescence Immunoassay System



Sample throughput:	Up to 120 tests/h
No of channels:	25
Assays:	63
Dimensions:	1,300 × 760 × 600 mm (w × h × d)
Weight:	225 kg

- Highlights:**
- High throughput up to 120 tests per hour
 - Benchtop analyzer
 - Large reagent capacity with 25 positions
 - Sample rack system
 - STAT lane
 - Single cuvette system
 - Dual substrate and automatically switch the empty one

Mindray – CL-900i Chemiluminescence Immunoassay System



Sample throughput:	Up to 180 tests/h
No of channels:	15
Assays:	63
Dimensions:	860 × 740 × 560 mm (w × h × d)
Weight:	130 kg

- Highlights:**
- High throughput up to 180 tests per hour
 - One of the smallest benchtop CLIA analyzer
 - Reagent capacity with 15 positions
 - Single cuvette system
 - Dual substrate and automatically switch the empty one
 - Intuitive software interface, easy access to all functions
 - Continuously loading of Intelligent consumables management reagents and consumables

Next Level of Laboratory Automation



DiaSys Diagnostic Systems and **Tosoh Bioscience** present consolidation of clinical chemistry and immunoassay analysis; either simply with a middle-ware or fully automated with a track system.

Tailor made solutions for individual customer needs!
www.diasys-diagnostics.com



CHOOSING QUALITY.

IMMUNOASSAYS

Snibe – MAGLUMI 4000 Plus



Sample throughput: 280 tests/h
Dimensions: 1,380 × 890 × 1,600 mm (h × w × d)

- Highlights:**
- On board capability: up to 144 samples
 - Reagent position: 25
 - Refrigerated sample and reagent area
 - Clot detection
 - Liquid level detection
 - Auto dilution for high concentration sample
 - Color touch screen
 - Bi-communication with LIS via ASTM protocol

Snibe – MAGLUMI 2000



Sample throughput: 180 tests/h
Dimensions: 1,350 × 760 × 1,580 mm (h × w × d)

- Highlights:**
- On board capability: up to 144 samples
 - Reagent position: 15
 - Refrigerated reagent area
 - Clot detection
 - Liquid level detection
 - Auto dilution for high concentration sample
 - Color touch screen
 - Bi-communication with LIS via ASTM protocol

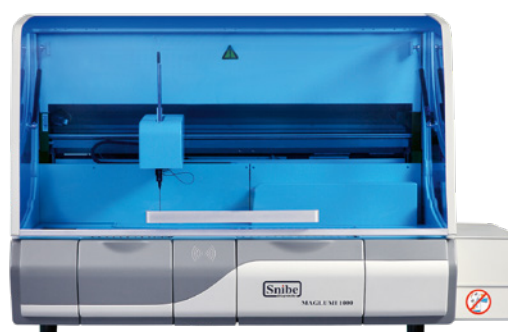
Snibe – MAGLUMI 2000 Plus



Sample throughput : 180 tests/h
Dimensions: 1,440 × 760 × 1,520 mm (h × w × d)

- Highlights:**
- On board capability: up to 144 samples
 - Reagent position: 25
 - Refrigerated sample and reagent area
 - Clot detection
 - Liquid level detection
 - Auto dilution for high concentration sample
 - Color touch screen
 - Bi-communication with LIS via ASTM protocol

Snibe – MAGLUMI 1000



Sample throughput: 120 tests/hour
Dimensions: 1,350 × 760 × 1,580 mm (h × w × d)

- Highlights:**
- On board capability: up to 144 samples
 - Reagent position: 15
 - Refrigerated reagent area
 - Clot detection
 - Liquid level detection
 - Auto dilution for high concentration sample
 - Color touch screen
 - Bi-communication with LIS via ASTM protocol

INTEGRATED SYSTEMS

Snibe – MAGLUMI 800



Sample throughput: 180 tests/h
Dimensions: 1,020 × 720 × 560 mm (h × w × d)

- Highlights:**
- On board capability: up to 40 samples
 - Reagent position: 9
 - Refrigerated sample and reagent area
 - Clot detection
 - Liquid level detection
 - Auto dilution for high concentration sample
 - Color touch screen
 - Bi-communication with LIS via ASTM protocol

Beckman Coulter – Power Link Workcell



- Highlights:**
- Parallel processing of shared chemistry and Immunoassay specimens
 - Single point of loading and unloading for shared chemistry and immunoassay samples for rapid processing
 - Integrated decapper to minimize biohazard exposure risk and repetitive motion injuries

The Power Link offers laboratories the ability to combine a Dx700AU chemistry analyzer with a DxI immunoassay analyzer to form an entry-level automated workcell, streamlining laboratory workflow. The Power Link delivers high-capacity specimen processing power and flexibility to meet clinical laboratory workload challenges. Designed to help enhance efficiency, reduce costs and speed the delivery of test results

Mindray – SAL 9000 Modular System



- Highlights:**
- Consist of clinical chemistry analyzer BS-2000M and chemiluminescence immunoassay analyzer CL-6000i
 - Large capacity: new rack system with up to 30 racks (300 samples), continuous loading supported
 - Easy operation: Intuitive interface for ONE integrated system operation software, real-time indication of cuvettes, real-time QC status monitoring, waste and wash buffer status, reflex and re-run function, step-by-step maintenance guide, etc
 - New SDM achieves effective distribution, quick response, fast STAT

Mindray – SAL 6000 Modular System



Sample throughput: Chemistry 1,200 tests/h,
Immunology up to 240 tests/h
No of channels: 36
Assays: 63
Dimensions: 3,935 × 1,016 × 1,145 mm (w × h × d)
Weight: 1,078 kg

- Highlights:** The SAL 6000 Modular System is a high-performance integrated system connecting seamlessly the BS-800M Chemistry Analyzer with the CL-2000i Chemiluminescence Immunoassay Analyzer, with a throughput of up to 800 photometric tests per hour and 240 tests per hour respectively. The system offers a large capacity of 300 sample positions and 36 reagent positions, and supports non-stop continuous sample loading.

INTEGRATED SYSTEMS

Siemens Healthineers – Dimension EXL Chemistry System



Sample throughput: Up to 440 photometric chemistry tests/h and 187 electrolyte tests/h
Up to 167 heterogeneous immunoassay tests/h

Highlights: Siemens Healthineers was the first company to integrate chemistry and immunoassay testing in one instrument, simultaneously processing tests from one sample tube to improve workflow efficiency. The Dimension EXL integrated system includes our patented LOCI homogeneous chemiluminescent technology, offering fast immunoassay reactions with high sensitivity and low sample volumes.

Product availability varies by country.

Siemens Healthineers – Atellica Solution



Highlights: Atellica Solution: Flexible, scalable, automation-ready immunoassay and chemistry analyzers engineered to deliver control and simplicity so you can drive better outcomes. Experience the power of the Atellica Solution, featuring patented bidirectional magnetic sample transport technology, the flexibility to create over 300 customizable configurations, and a broad assay menu with proven detection technologies.

Product availability will vary by country.

MASS SPECTROMETRY

Sciex – 4500MD series: Triple Quad or QTRAP LC-MS/MS



Dimensions: 790 × 590 × 790 mm (w × h × d)
Weight: 130 kg
Sample throughput: Up to 60 samples/h
Power consumption: 2.2 kW
No of channels: 1
Assays: Vitamin D and Immunosuppressant drugs
No of parallel samples: 0

Highlights:

- Enable your clinical laboratory to develop tests for the most demanding clinical applications
- Keep assays in-house and increase lab capabilities with an affordable benchtop platform with unique performance and application versatility
- Minimize downtime, improve lab productivity with robust performance and excellent ROI
- Quantitate multiple low level compounds in a single analysis with high accuracy and sensitivity
- Minimize training time and increase efficiency with powerful workflow-driven software

Shimadzu – LCMS-8050 CL



Dimensions: 1,180 × 540 × 610 mm (w × d × h)
Weight: 140 kg

Highlights: Triple Quadrupole Mass Spectrometry is the method of choice for quantification of trace-level analytes in complex samples for a variety of applications including clinical research, forensic, toxicology, pharmacokinetics. Combined with our world-leading UHPLC systems, and maintaining Shimadzu's proprietary ultrafast technologies (UFMS), which include high-speed MRM transitions, MS/MS acquisition, and ultra-high speed polarity switching, the LCMS-8050 can dramatically improve analytical throughput.

Shimadzu – LCMS-8060 CL



Dimensions: 1,180 × 540 × 610 mm (w × d × h)
Weight: 140 kg

Highlights: The LCMS-8060 delivers the highest sensitivity and fastest analysis speed of any LCMS on the market today. A newly developed UF-Qarray boosts ion intensity but suppresses noise. By improving the ion sampling device, the ion guide, and vacuum efficiency, Shimadzu has achieved an unprecedented sensitivity in quantitative analysis by LC/MS/MS while keeping high robustness for daily analysis.

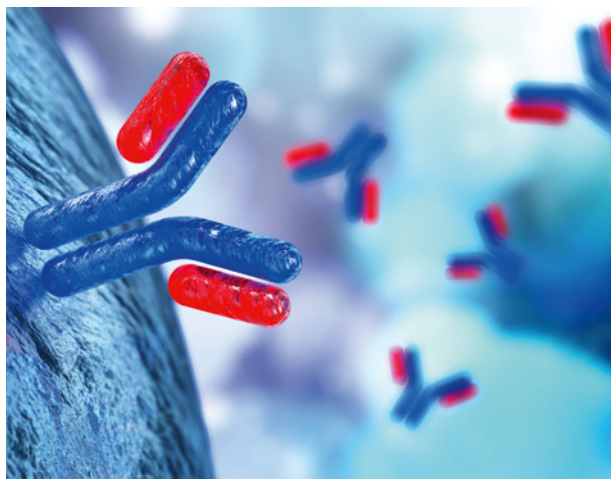
Shimadzu – LCMS-8045 CL



Dimensions: 1,180 × 540 × 610 mm (w × d × h)
Weight: 140 kg

Highlights: The LCMS-8045 offers the proven high sensitivity, high speed and robustness of Shimadzu's UFMS series to provide highly reliable data for applications that demand the sensitivity and speed of a mass spectrometer, such as for simultaneous analysis used in the clinical research field. Due to the heated-ESI probe and UFSweeper II collision cell, it offers the highest sensitivity in the middle-range class (UFsensitivity).

Shimadzu – nSMOL Antibody BA Kit



Assays: 100

Highlights: nSMOL is a proprietary, innovative technique from Shimadzu, enabling selective proteolysis of the Fab region of monoclonal antibodies. The nSMOL Antibody BA Kit is a ready-to-use reagent kit for collecting monoclonal antibodies from blood or other biological samples using immunoglobulin collection resin, and then performing selective proteolysis of the Fab region of these antibodies via FG beads Trypsin DART. Fab-derived peptide fragments produced by limited digestion can then be quantified via LC-MS/MS.

ELECTROPHORESIS/CHROMATOGRAPHY

biostep – Chemiluminescence / Fluorescence Imager Calvin S



Dimensions: 420 × 240 × 360 mm (h × w × d)
Weight: 10 kg

Highlights:

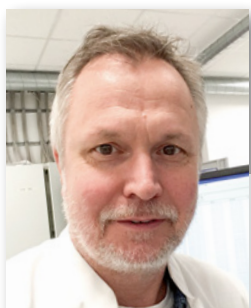
- Smallest chemiluminescence imaging system, imaging area up to 14 × 14 cm
- Cooled CCD-camera
- Binning up to 6 × 6
- Four camera options from high resolution to high sensitivity
- Electromagnetic safety lock
- Acquisition of colorimetrically-stained markers possible
- GxP-compliant in Master and Serial Mode
- Image export as raw data for analysis or as optimized image for publication
- Fluorescence module incl. four excitation and emission wavelength settings each

LC-MS plays a significant part in easing the daily workload



Increasing productivity and throughput

Liquid chromatography–mass spectrometry



PROFILE:

Following graduation, chemist Dr Lars Kröner became a research assistant in the forensic toxicology departments of Bonn and Cologne forensic medicine institutes. In 2008, he was appointed head of the department of clinical and forensic toxicology and drug analysis at the Dr Wisplinghoff Laboratory in Cologne, Germany.

Liquid chromatography-mass spectrometry (LC-MS) has become a highly valued procedure in state-of-the-art laboratories – among them the Dr Wisplinghoff Laboratory in Cologne, which adopted the method a decade ago. In its forty years, the organisation has provided physicians with the entire clinically relevant analysis spectrum of laboratory medicine, pathology, transfusion medicine as well as human genetics, and employs more than forty specialists in these fields. “We support

our practicing colleagues through valid findings so that they can provide optimum care,” the laboratory’s founder Dr Uta Wisplinghoff points out.

When European Hospital correspondent Walter Depner interviewed chemist Dr Lars Kröner, who leads the department of clinical and forensic toxicology and drug analysis at Dr Wisplinghoff, he spoke of the company’s involvement with and future applications of LC-MS.

Walter Depner: In a hospital lab, the team knows the structures of the institution, its departments and facilities. While even in such a setting you never know which and how many samples will arrive on any given day, you do have an idea about the volume and the type of work your lab will face. In a non-hospital lab, the situation is entirely different: with thousands of clients, you never know what you have to expect. Does this make your daily work more difficult?

Dr Lars Kröner: No. While there are seasonal variations, we are well prepared for anything that comes in.

How do you manage pre-analytics – a critical workflow component? Do you have fixed time slots when you accept orders or do you react spontaneously and flexibly?

At this point we do not provide a 24/7 LC-MS service. Pre-analytics is largely defined by the stability of the analyte. Cooled samples are analysed upon arrival. Emergency tests, such as examining urine samples for drugs, and samples with time-critical parameters, such as immunosuppressants, or amiodarone, or drug tests in capillary blood or urine in substitution patients are handled as soon as possible and definitely on the same day.

When did you begin to use LC-MS in your lab and what is its value?

We introduced LC-MS in our lab in 2008, pretty much exactly ten years ago. From the very beginning we developed our own methods, primarily in the context of psychopharmaceuticals and drug abuse. Later, we also included hormones and metabolic products. The added value is, above all, that we can offer new kinds of analyses, which previously we had to outsource.

Since we have been using HPLC-UV/VIS methods and ELISA tests with LC-MS we have recorded improved precision and an increase in throughput. Moreover, our own developments reduce price per piece as compared to commercially available kits and assays.

In your lab, which samples or analyses are most frequent?

This is clearly the detection of hormones such as calcifediol and steroids, but also TDM and drugs from capillary blood, blood, serum, urine and hair. With regard to LC-MS/MS at this point we solely use triple quads, two of them as hybrids with a linear ion trap, Otrap. The ion trap allows us to obtain structural information even in low concentrations. Triple quads offer high sensitivity and a larger dynamic range for exact quantification while being tolerant in terms of matrix interferences. Short analysis cycles enable high sample throughput.



The method was first introduced a decade ago in 2008



Currently used by the lab for forensic and clinical purposes, LC-MS primarily detects active ingredients in medication, hormones and drugs

Which MS methods, such as sector field, quadropole or TOF, does your lab use?

Tandem mass spectrometry with triple quad and single quad with ICP-MS and GC-MS.

Which instrument configurations do you use?

For LC-MS/MS we work with Sciex and Shimadzu, i.e. normally four pumps for online extraction; for GC-MS and GC-MS/MS we use Shimadzu, for ICP-MS we use PerkinElmer.

Which parameters does your lab determine today with LC-MS and what are your plans for the future?

Currently we use LC-MS primarily to detect active ingredients in medication such as psychopharmaceuticals, antiepileptic medication or immunosuppressants; hormones such as calcifediol and steroids; and drugs, both for forensic and clinical purposes from capillary blood, blood, serum, urine and hair.

Interesting future parameters concern pharmaceuticals where a closer TDM, i.e. minimum blocking level, might be advantageous, for example in antibiotics; other areas are biomarkers, for example with regard to the thyroid, but also drugs in alternative samples. Sputum and breathing air might also be possible.

Last, but not least, there is forensic toxicology – to diagnose driving ability, for example. Our lab is leading in terms of capillary blood.

How did the team handle the transition to a more chemical/technical way of working?

No problem at all; the team received the usual LC-MS training. Some colleagues were also trained in areas such as equipment maintenance or development and validation of methods.

ELECTROPHORESIS / CHROMATOGRAPHY

Shimadzu – HPLC/UHPLC



Highlights: SHIMADZU is offering a wide range of solutions in liquid chromatography starting from standard HPLC systems to high end UHPLC systems including compact configurations. Available with several options for columns switching, pre-concentration, online SPE, etc, the systems are also well recognized for coupling with highly sensitive detectors like fluorescence, radio-activity, electrochemical, or mass spectrometry. To increase throughput with mass spectrometers, SHIMADZU offers the NEXERA-MX configuration.

PLASMA PROTEIN TESTING

Siemens Healthineers – BN II System



Sample throughput: Effective: Approx. 130 tests/h depending on the assay mix
Nominal: 225 tests/h

Assays: More than 60 programmed assay protocols

Weight: Analyzer: 150 kg

Highlights: The BN II System is an easy-to-use, reliable nephelometric analyzer that offers a broad range of protein assays.

- Connectivity options to Aptio Automation and FlexLab Automation solutions
- Fully automated assay processing: from reading of sample tube bar codes to reporting of results
- Routine and specialty assay consolidation
- Innovative markers including monoclonal kappa and lambda free light chains (FLC), cystatin C, beta-trace protein (BTP), and carbohydrate-deficient transferrin (CDT)

Siemens Healthineers – Atellica NEPH 630 System



Sample throughput: Effective: Approx. 65 tests/h depending on the assay mix
Nominal: 100 tests/h

Assays: More than 60 programmed assay protocols

Weight: Analyzer: 115 kg

Highlights: The Atellica NEPH 630 System is a mid-volume dedicated nephelometric analyzer that simplifies lab operations in specialty protein testing.

- Innovative assays including free light chains (FLC), carbohydrate-deficient transferrin (CDT), and beta-trace protein (BTP)
- Sophisticated antigen-excess pre-reaction protocols provide more accurate results and fewer repeats

Not available for sale in the US. Product availability may vary from country to country and is subject to varying regulatory requirements

DRUG TESTING

Siemens Healthineers – Viva-ProE System



Sample throughput: Up to 133 EMIT tests per hour with two reagents;
Up to 65 EMIT tests per hour with three reagents

Weight: Approx. 93 kg / 205 lbs (excl. monitor arm and panel PC)

Highlights: A flexible approach to dedicated drug-testing analysis, the Viva-ProE System provides greater ease of use, workstation efficiency, and a full drug-testing menu, all in one powerful benchtop system that is supported by unrivaled Syva experts. The system offers peltier cooling for efficient reagent use, can run up to 133 Emit tests per hour and 12 Emit assays simultaneously; 120 tests can be programmed with 10 open test channels. Results available within 10 minutes of processing.

URINE SCREENING

Analyticon Biotechnologies – Urilyzer Flex

Sample throughput:

Chemistry: Up to 500 samples/h
Sediment: Up to 90 samples/h



Highlights:

- Ideal for labs with max. 150 sediment and max. 250 chemistry samples per day
- The automated sediment analysis leads to a standardization and consequently to an improved comparability of the results
- Consolidated report and/or connection to LIS
- Reduces the number of manual working steps and thus sources of error are minimized
- Efficient workflow decreases hands-on

BD Vacutainer Urine Collection System



Dimensions:

13 x 75 mm / 4 mL volume
13 x 100 mm / 6 mL volume
16 x 100 mm / 8 – 11 mL volume

Highlights:

- This closed system offers a range of solutions for collection, transport and preservation of urine samples to meet the needs of each patient according to their age, health and mobility.
- A wide range of tube volumes for microbiology and urinalysis determinations, with or without preservatives is available.
- BD collection devices include specimen cups, 24 hour 3L containers and transfer straws for all patient collection methods.



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URINE SCREENING

Beckman Coulter – Iris iRICELL Series



Sample throughput: Up to 70 samples/h (microscopy),
Up to 210 samples/h (chemistry)

Highlights: The Iris iRICELL2000, available from Beckman Coulter, integrates urine chemistry and microscopy into a fully automated walk-away solution to help increase efficiency and improve lab productivity. By focusing on one particle at a time, IRIS products isolate, identify and characterize particles, nearly eliminating the need for manual microscopic review. This leads to improved workflow, lower review rates and reduced urine cultures.

Greiner – VACUETTE Urine CCM Tube



Highlights:

- For use in microbiology testing
- Stabilizes sample for up to 48 hours at room temperature
- High solubility of additive in powder form
- Immediate stabilization of sample after gentle mixing

Sarstedt – Urine V-Monovette, Monovette, tubes & containers



Highlights:

- The diverse, user-friendly products for urine collection offer pre-analytical and post-analytical solutions thanks to their simple, hygienic use. Our range of conical urine tubes is ideally suited for sediment recovery and subsequent microscopic analysis.
- Urine-Monovette: For hygienic and needle-free urine collection, transport and analysis.
- V-Monovette Urine: For enclosed urine transfer. Optimal hygienic and convenient handling.

Sysmex – UN-Series



Dimensions: 872 x 1,918 x 901 mm (h x w x d)
Weight: 269 kg

Highlights:

- Combines digital imaging, particle and chemistry analysis (UD-10/UF-5000/UC-3500)
- Fully automated urinalysis workflow solution
- User-friendly and easy handling
- Multiply your throughput by connecting more than one UF together with one or more UD-10
- Extend your possibilities by adding a UC-3500
- Intelligent data management by U-WAM (Urinalysis Work Area Information Management System)

Sysmex – UC-3500



Sample throughput: Max. 276 samples/h
Dimensions: 829 × 638 × 709 mm (h × w × d)
Weight: 75 kg

- Highlights:**
- User friendly and easy handling
 - Fully automated urine chemistry analysis
 - Fast total turnaround time (TAT)
 - Combination with the UF-5000 and the UD-10 for an optimal, fully automated urinalysis workflow
 - 11 test strip parameters including microalbumin and creatinine, and five system parameters
 - Able to distinguish between RBC and haemoglobin thanks to the new CMOS sensor
 - High accuracy for specific gravity (refractometry measurement method) and cloudiness

Sysmex – UF-5000



Sample throughput: 105 (urine), 20 (body fluids) samples/h
Dimensions: 855 × 760 × 754 mm (h × w × d)
Weight: 90 kg

- Highlights:**
- Fully automated urine particle analysis
 - Modular concept: easy to combine with other members of the UN-Series for a fully automated urinalysis workflow
 - Integrated body fluid mode
 - Small sample volume needed
 - Exclude negative UTI samples in less than a minute
 - Blue laser for better detection of bacteria
 - New depolarised side scatter light to differentiate RBC and crystals
 - Differentiation of epithelial cells & casts
 - Reliable QC management by our SCNS network

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RAPID TESTING

Greiner – Saliva Collection System



- Highlights:**
- Simple reproducible saliva collection
 - Internal standard (tartrazine) enables donor-specific quantification
 - No absorption of analytes
 - Sufficient sample volume for A and B sample splitting
 - Determination of biomarker (α -amylase, cortisol) possible to enable indication of sample adulteration
 - No detergents which interfere with analysis

Sarstedt – Blood gas Monovette and capillaries



- Highlights:**
- Blood gas collection systems for arterial, venous and capillary sampling with the smallest sample volumes and Ca^{2+} balanced heparin.
 - The Ca^{2+} balanced heparin in spray-dosed droplet form enables rapid and optimal mixing of blood and anticoagulants.
- The Blood gas Monovette is available in 1 and 2 ml options and has been designed for venous and arterial blood collection. The blood gas capillaries offer a nominal volume range of 100 – 175 μl .

RESEARCH USE ONLY (RUO)

Shimadzu – CLAM-2000

Dimensions:

670 × 700 × 1,190 mm (w × d × h)

Weight:

185 kg

Assays:

Immunosuppressants, vitamin D, steroids



- Highlights:** CLAM-2000 provides users seamless integration of automated sample preparation with LC-MS/MS to improve data quality, sample throughput, laboratory efficiency and safety. Simple workflows allow users to go from blood collection tubes to results without any additional sample handling. Each sample is processed successively in parallel, to optimize instrument usage. Easy to access software for management of reagents, calibration curves, control samples and maintenance ensure reliability and quality of results.

Hematology & Pathology



greiner bio-one

diatron ●●

Blood Cell Counter
Integrated Hematology
Microscopy
Hemostaseology
Scanner
Slide Preparation
Printer
Information Technology
Other

Genruⁱ

HAMAMATSU
PHOTON IS OUR BUSINESS



KUGEL
medical
■ ■ ■ ■

mindray

OLYMPUS
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HORIBA
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PRIMERA
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 **SARSTEDT**

SIEMENS
Healthineers

VISIOPHARM[®]
TRANSFORMING PATHOLOGY

 **sysmex**

TECO
Innovation in Coagulation

Innovation in Hematology

Advancements and future trends



DxH 900 hematology analyzer benchmarks first-pass yield rates with 93 percent autoverifiable results.

While the role of the laboratory in disease diagnosis and management has expanded in recent years, causing an overwhelming rise in testing demands, the availability of skilled technologists and specialists has been diminishing. To meet the needs of an overworked and increasingly generalized workforce, today's products not only must deliver more clinical data than ever before, but also must be easier to operate, relieving overburdened laboratory staff members of cumbersome tasks. Innovators have answered these needs with technological evolutions in the areas of new product commercialization, clinic workflow, analytical advancements and clinical information management.

Commercialization

In the past two years, several new products and technologies have emerged on the market, all of which promise to change the traditional understanding of laboratory hematology workflow and standards. New automated systems broaden capabilities beyond traditional methodologies that include cellular analysis combined with manual review. Globally, due to fast-moving product development, small entrepreneurial niche manufacturers and large multinational companies have launched products on the scene to provide unique solutions to evolving customer needs.

Beckman Coulter continues its rich legacy of innovation to address changing market needs. The company recently released smaller, fully integrated analyzers, such as the DxH 500*, DxH 520* and DxH 900. These products have been continuously refined with direct input from customers and offer many innovations that improve workflow, uptime and staff satisfaction. Such customer-centric design practices – long common in consumer-goods industries – have been slowly filtering to the field of laboratory diagnostics, where, traditionally, the focus has been solely on improving technology and measuring progress.

Workflow

With staff and economic resources stretched, technologies that enable high-first pass yield and reduced manual interventions are increasingly important. Beckman Coulter's unique technology gives laboratories the ability to achieve the right results the first time – with no reflex or repeat testing and with fewer required manual interventions – laboratory staff can reduce reagent use and manage variable costs more effectively. The core technical requirements for high first-pass yield are low coefficients of variance and a low number of background counts. The DxH 900 enables low single-digit coefficients of variance for platelets and has a background count of only 3,000 cells/mL¹.



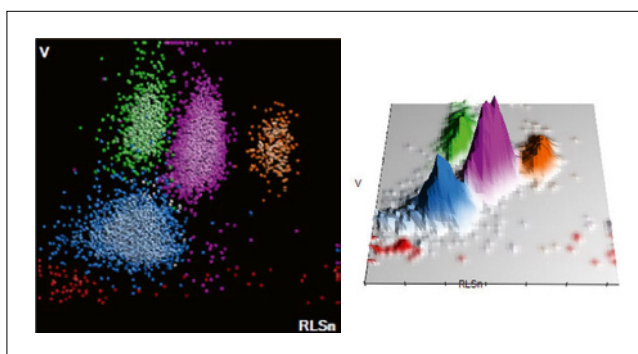
CONTACT US

Beckman Coulter, Inc.
250 S. Kramer Boulevard · Brea, CA 92822, USA
phone: +1 714 9935321
cvillarreal@beckman.com · www.beckmancoulter.com

Because of the help of these tools, the system achieves 93 percent first-pass yield, meaning that 93 percent of the time², on average, a hematological result can be auto-validated after its first run on a DxH system. The right results the first time translates into no need for additional analyzers, hardware or expensive reagents to double-check the initial result. While this rate will depend on the laboratory's patient population, protocols and decision rules, and a host of other factors, high first-pass yield is not the only efficiency-boosting feature of the DxH 900. The system also demonstrates a high walkaway time – processing up to 640 cycles¹ before any reagent changes are necessary. This is double the number of its predecessor system. This, combined with the fact that the system only requires four reagents versus nearly a dozen³ for other instruments, reduces the number of times laboratory technicians must interact with their instruments and frees them to spend time elsewhere.

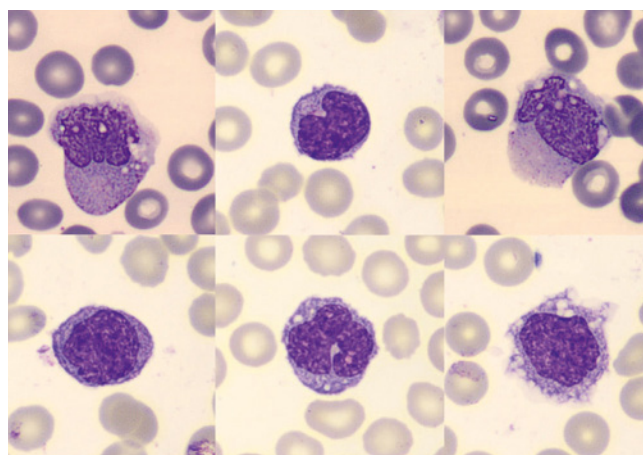
Analysis

Revolutionary advancements in computing, electronics and manufacturing, along with continuous innovation in the areas of biotechnology, fluidics and mechanics, have led to a reduction in the size of analyzers. Progress outside of the field of hematology results in more tools and methods for hematological analysis. A short review of any hematology-focused scientific journal or congress showcases that many papers address combining traditional automated analysis and morphological slide review, with innovative flow cytometry analysis, genomics testing, advanced automated imaging processing and microfluidics. While many of these techniques are at the early stages of development and exist outside of routine core hematology laboratories, it will not be long before they become standard for any laboratory staff technologist.



DxH 900 VCS 360 white blood cell scatter- and surface-plot

Recently, Beckman Coulter launched the Aquios flow cytometer, fully automating the typically arduous sample preparation process for fluorescent cell analysis. Simultaneously, advanced computer algorithms have enabled automatic gating of fluorescent scatter plots; thus, for some results, this technology automates a task typically performed by highly trained clinicians, using a manual sample-by-sample approach. Because of this, the Aquios packs the power of fluorescent flow cytometry into a small system that operates like a traditional automated hematology analyzer. These types of designs will democratize some advanced tests – moving them from limited, specialized, high-cost applications to everyday use and freeing clinicians and pathologists to focus on their most challenging samples.



Monocyte population exhibiting heterogeneity and functional plasticity

Clinical Information Management

Innovation in the area of clinical information also promises to save laboratory time and labor, while enhancing patient care. As measurement and analytical tools improve – in particular, optics, electronics, computing algorithms and reagent systems – the insights into cellular health and physiology also grow. The power of cell morphology insights, for example, is evidenced by the CE mark of Beckman Coulter's Early Sepsis Indicator*. This indicator relies on morphological changes of monocytes to alert clinicians of the possibility of developing sepsis in patients much earlier than traditional testing methods. Monocytes are among the first responders to infection, and changes in their size may presage the onset of the "cytokine storm" that is a hallmark of sepsis. Analysis of minute morphological changes – femtoliters in size across a population of monocytes – is enabled by core advances in VCS 360 technology, implemented in the DxH 900 hematology analyzer. This new flag helps address a key unmet clinical need – the ability to confidently assess sepsis risk shortly after entry to the emergency department. Studies have shown that for every hour earlier that antibiotics are administered, mortality rates can decrease by 7.6 percent^{4,5}. Thus, by utilizing the Early Sepsis Indicator* as one part of the sepsis management strategy, hospitals can expect to treat patients earlier, saving lives and considerably, reducing the overall sepsis cost burden.

New tools and parameters, such as the Early Sepsis Indicator*, will continue to emerge as the market competition increases and technology evolves. Thus, the traditional concept of laboratory hematology will also evolve – to one leveraging a variety of orthogonal techniques to produce deeper clinical insights faster and at a lower cost than ever before. Indeed, this is an exciting time in the field, and the next five years should see seismic changes that promise to bring better patient care and more options for laboratory professionals. ■

* CE Marked. Pending 510(k) clearance by the U.S. FDA. Not yet available for in vitro diagnostic use in the U.S.

¹ C06947AB December 2017 DxH 900 IFU

² DxH series side-by-side results documentation.

³ Competitor automated hematology analyzers, Instructions for Use (IFUs).

⁴ Kumar G, Kumar N, Taneja A, Kaleekal T, Tarima S, McGinley E, Jimenez E, Mohan A, Khan RA, Whittle J, Jacobs E, Nanchal R. Nationwide trends of severe sepsis in the twenty first century (2000-2007)

⁵ Chest. 2011;16:1223-1231. doi: 10.1378/chest.11-0352. [PubMed] [Cross Ref]

BLOOD CELL COUNTER

Beckman Coulter – DxH 900 Hematology Analyzer



Dimensions:

755.7 × 1,740 × 828 mm (w × h × d)

Weight:

254 kg

Sample throughput:

Up to 100 samples/h

Power consumption:

520 W

Highlights: The right results, the first time. The DxH 900 hematology analyzer enables your high-volume laboratory to achieve superb RBC, PLT and WBC differentials through near native-state cellular characterization.

Streamlined processes help your laboratory maximize staff time through the most reportable results per square meter in the industry, fewer slide reviews and high system reliability for greater uptime.

- Achieve superb RBC, PLT and WBC differentials through near native-state cellular characterization
- Maximize staff time with the most reportable results per square meter, fewer slide reviews and minimal manual interventions

Utilize a new reportable parameter, Early Sepsis Indicator, for the emergency department to identify the possibility of infection earlier to stop potentially deadly complications from developing or progressing, helping to reduce the cost of care.

The first early sepsis warning solution to be offered as part of a routine CBC with differential test, the Early Sepsis Indicator gives physicians a rapid and simple tool that can aid in the fight against sepsis. The new marker will be commercially available on the DxH 900 hematology analyzer.

Beckman Coulter – DxH 520 Hematology Analyzer



Dimensions:

270 × 404 × 430 mm (w × h × d)

Weight:

11.4 kg

Sample throughput:

60 samples/h Open vial;

55 samples/h Cap pierce

Power consumption:

< 120 W

- Highlights:**
- Safety first: Cap piercing
 - Minimal space and inventory management: Only three reagents and a small footprint (27 × 43 cm, A3-paper size)
 - Intuitive with minimal training requirement: Navigate with max three clicks to all functionalities
 - Faster turnaround time: Full five-part differential and advanced data for anemia analytics
 - Pediatric-friendly: Only 17 µl aspiration volume
 - A complimentary platform for use in a range of lab settings: Ideal companion for DxH 600/800/900 solutions as small back-up
 - Excellent correlation with high volume DxH analyzers
 - Solution for small labs in hub-spoke configuration

Diatron – Complete Blood Count Versatility with the Aquila



Sample throughput: 60 tests/h

Parameters: 22

Dimensions: 323 × 272 × 366 mm (h × w × d)

Weight: ~16 kg inc reagent pack

- Highlights:**
- Compact size and unique on-board reagent pack requires little storage and work space
 - Three part diff hematology results requiring around 20 µl of blood
 - Closed or open tube mode
 - Portable with an optional battery pack

Genrui – 5-Part Auto Hematology Analyzer KT-6610



Sample throughput: 60 tests/h
Dimensions: 430 × 350 × 435 mm (d × w × h)

- Highlights:** KT-6610 is a compact yet powerful hematology analyzer. It is an all-in-one solution for small labs and clinics with real 5-Part results.
- Tri-angle laser scattering, flow cytometry for WBC differentiation and counting
 - 29 parameters + 4 scattergrams + 2 histograms
 - 10.4 inch touch screen
 - Built-in barcode scanner
 - Built-in printer, also support external printer
 - Three reagents for one test, Two Lyses are placed in the analyzer
 - Powerful flag information
 - One click solution for basic trouble shooting
 - QC assay file import

Greiner – VACUETTE EDTA Tube



- Highlights:**
- EDTA tubes are offered as either K2EDTA or K3EDTA tubes
 - Contain (besides the K2EDTA) an inert barrier gel that is present in the bottom of the tube.
 - Plasma may be aspirated directly from the collection tube, eliminating the need for transfer to another container
 - VACUETTE EDTA tubes with separator gel improve the plasma yield and enable plasma to be left in the primary tube
 - This allows stability of certain parameters, when kept under specified conditions.
 - Also available with pre-attached barcode



BC-6000



BC-6200

BC-6000/6200 Auto Hematology Analyzer

High Performance for All

- Unique SF Cube 3D cell analysis method for WBC 5-part and NRBC
- NRBC result in every CBC
- Up to 110 samples per hour, low aspiration volume of 80 µL
- Smaller footprint with high performance
- Excellent ability to distinguish immature cells
- Optional optical PLT counting
- Body fluid analysis with up to 7 reportable parameters
- Simplified workflow with labXpert analysis software
- Automatic rerun & reflex measurement in case of abnormal results
- BC-6200 has RET channel that can provide RET and PLT-O parameters and perform up to 8x PLT-O counting

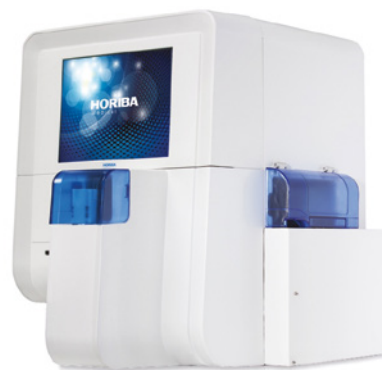
BLOOD CELL COUNTER

Hecht – Counting Chambers Bright-Line



- Highlights:**
- Counting Chambers of glass with diverse counting grids
 - Grids available: Thoma, Neubauer, Neubauer improved, Bürker, Türk, Bürker-Türk, Nageotte, Thoma neu, Fuchs-Rosenthal, Jessen, Schilling-Kreuznetz, Malassez
 - Double ruling, without clamp, with two optically plane cover glasses
 - Comes in transparent plastic box
 - Bright lines in dark, rhodium coated field
 - Standard Depth: 0.100 mm
 - CE

HORIBA Medical – Yumizen H550



Dimensions: 530 × 620 × 670 mm (w × h × d)
Weight: 36 kg

- Highlights:** The Yumizen H550 is a compact 6-Diff hematology analyzer for small-mid size laboratories. It provides safe sample management and combines:
- Auto sampling system with full walk away capability
 - One hour autonomy of 40 samples in rack
 - Continuous loading
 - Manual mode for STAT samples
 - Innovative "three reagents use" technology with low consumption
- The Yumizen H550 incorporates flexible connectivity with both ASTM and HL7 communication standards and overlapping Quality Controls.

Mindray – BC-6800Plus Auto Hematology Analyzer



Sample throughput: CBC+DIFF 200 t/h, RET 120 t/h, BF 40 t/h

- Highlights:** BC-6800Plus is currently the fastest standalone hematology analyzer in the world, which can process 200 CBC+DIFF samples/h and 120 RET samples/h. Notably, the ERP channel can provide more research parameters such as MCHr and HDW, which can help early diagnosis of various types of anemia

Siemens Healthineers – ADVIA 360, 560, and 560 AL Systems



Dimensions: 360 × 316 × 492 mm (h × w × d)
 520 × 410 × 490 mm (h × w × d)
Sample throughput: Approx. 60 tests/h
Parameters: 22 – 26 parameters;*
 3- or 5-part white cell differential

- Highlights:** The ADVIA 360, 560, and 560 AL Systems provide laboratories with intuitive, easy-to-use, and scalable hematology solutions designed to offer the right fit for every lab. Each system delivers fast, reliable, and accurate CBC and white cell differential testing with the performance and adaptability that low- and mid-volume labs need. The optional autoloader on the ADVIA 560 AL streamlines automatic sampling for even greater workflow efficiency.

*Not all parameters are available in the U.S.

Siemens Healthineers – ADVIA 2120i System



Dimensions: 860 × 1,410 × 680 mm (h × w × d)
Sample throughput: Up to 120 samples/h
Parameters: CBC incl. NRBC, 6-part white cell differential, reticulocytes, body fluids, and comprehensive morphology results

Highlights: The ADVIA 2120i System with Autoslide streamlines workflow by eliminating the majority of manual steps commonly performed to maximize productivity. Its unique testing methodology optimizes results while offering the simplicity and flexibility you need for easy integration into your lab. With connectivity to Aptio Automation and CentralLink Data Management System, it supports accurate, fast, sample processing with fully customizable, user-defined features.

Sysmex – XN-1500 (Count. Smear. Stain. All-in-one haematology)



Sample throughput: XN-module
 CBC+DIFF: up to 100 samples/h,
 up to 40 samples/h in BF mode
 SP-50 module
 SP-50: up to 30 slides/h in S mode,
 up to 75 slides/h in H mode

Dimensions: 1,006 × 1,053 × 855 mm (w × h × d)
Weight: 211 kg

Highlights:

- Fully integrated slide maker & stainer SP-50
- Flexible throughput depending on the workload
- Automatic Reflex measurement in case of unreliable results
- Reduced time for the preparation of the slides
- Minimum need for manual tasks and less biohazard procedures
- Small footprint
- Optional integration of digital imaging module DI-60
- Reduced sample volume (for the smear preparation)
- Staining protocols (SP-50):
 May Grünwald – Giemsa, Wright – Giemsa, Wright

Sysmex – XN-L Series



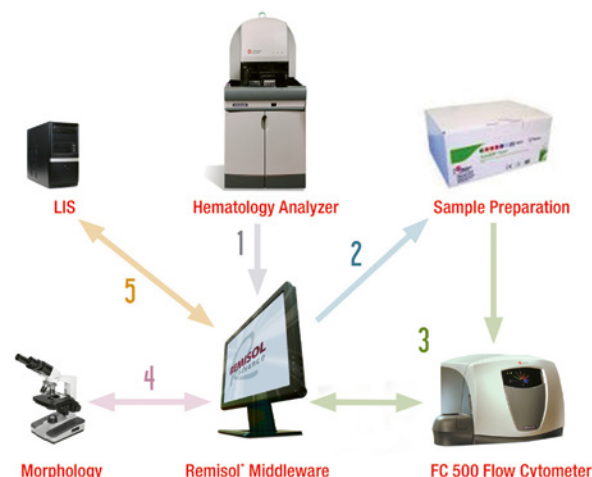
Sample throughput: CBC + DIFF up to 70 samples/h with the optional Speed-up licence
Dimensions: 440 × 510 × 450 × 460 – 660 mm (h × w × d) (depending on model)
Weight: 35 kg (XN-350, XN-450);
 53 kg (XN-550 incl. sampler);
 3 kg (XN-550 monitor)

Highlights:

- XN-350: Single sample analysis in open mode
- XN-450: Single sample analysis in closed or open mode
- XN-550: Automated sampler analysis for increased workflow productivity: Rerun & Reflex and continuous loading
- Add reticulocyte and body fluid analysis as you need them
- XN quality. Cost-effective. Plus full support.
- Delivering specialist solutions for labs that need to offer niche diagnostics.
- A perfect secondary analyser
- Upgrade from 3-part differential to 5-part differential at a price you can afford

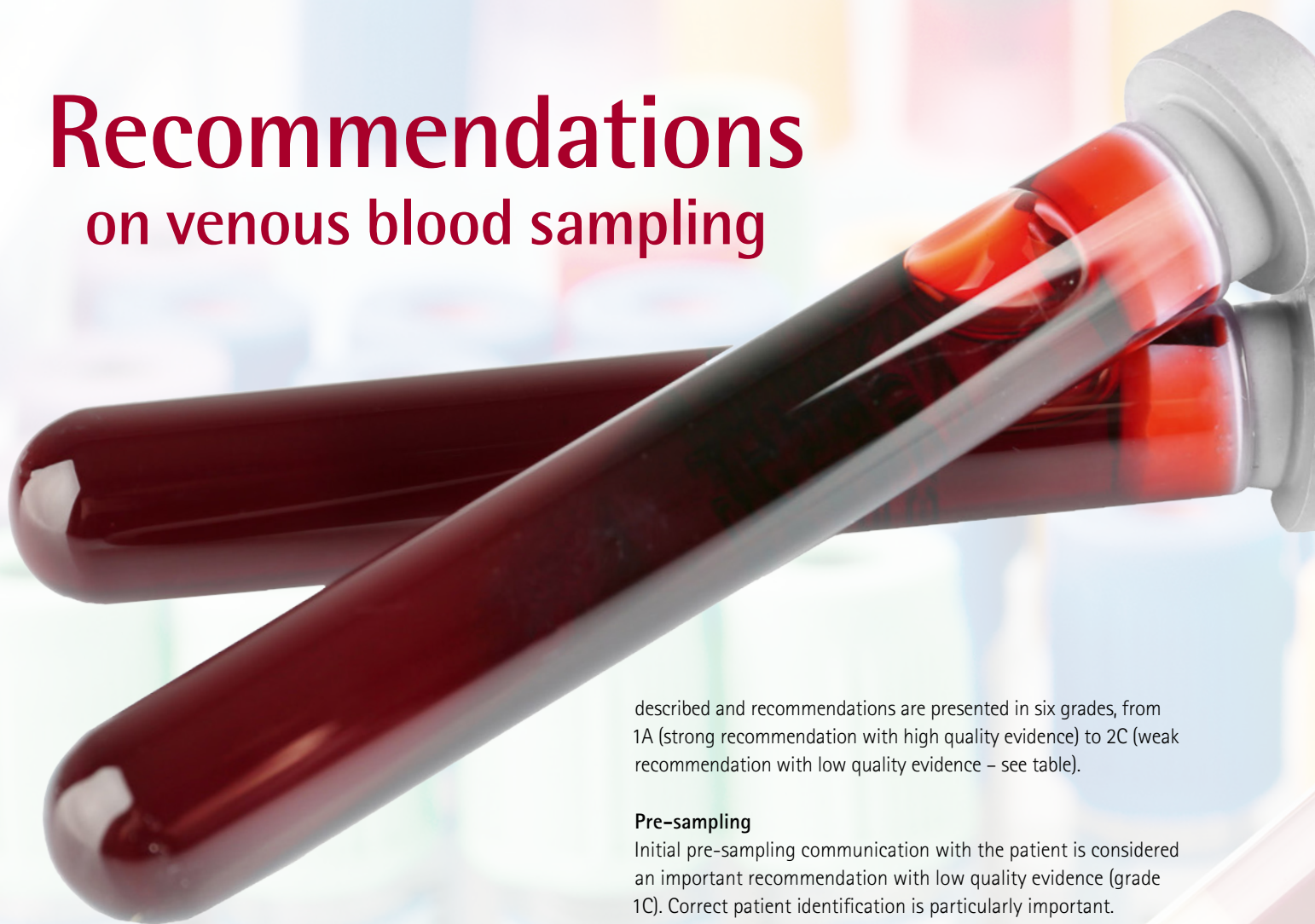
INTEGRATED HEMATOLOGY

Beckman Coulter – HematoFlow



Highlights: HematoFlow is a unique cellular analysis solution which brings automated flow cytometry testing into the routine, mid to large haematology laboratory. When used in the HematoFlow solution with automated gating software, CytoDiff, a 5 colour, 6 monoclonal antibody reagent cocktail, yields more extensive results with a 16-part flow differential. With the HematoFlow, labs save time by reducing manual slide reviews.

Recommendations on venous blood sampling



Pre-analytics, in particular venous blood sampling has a major impact on the quality of laboratory diagnostic results. An estimated 75 percent of all "lab errors" are caused by errors during pre-analytics. Thus, the German Medical Association's national guideline on laboratory diagnostics includes detailed guidance on pre-analytics, in particular venous blood sampling. In their current publication, Joint EFLM-COLABIOCLI Recommendation for venous blood sampling, the Working Group on Pre-analytics (WG-PRE and WG-PRE-LATAM) of the European Federation of Clinical Chemistry and Laboratory Medicine (EFLM) and the Latin America Confederation of Clinical Biochemistry (COLABIOCLI) present data on venous blood sampling and individually assess their impact on errors in the results. Twenty discrete steps are

described and recommendations are presented in six grades, from 1A (strong recommendation with high quality evidence) to 2C (weak recommendation with low quality evidence – see table).

Pre-sampling

Initial pre-sampling communication with the patient is considered an important recommendation with low quality evidence (grade 1C). Correct patient identification is particularly important. Many laboratory parameters, e.g. proteins, can be strongly affected by the patient's position during sampling. Therefore, the patient should ideally not change his/her position within 15 minutes prior to blood sampling. While this usually is not an issue with hospitalized, bedridden patients, for outpatient sampling, which is mostly done with the patient in a sitting position, this might be important.

All blood tests should be drawn in the morning (between 7 and 9 am) in a fasting state, 12 hours after the last meal. Moreover, consumption of alcohol and caffeine-containing beverages,

PROFILE:

Prof Dr Dr Norbert Gässler is Director of the Centre of Laboratory Diagnostics at St. Bernward Hospital in Hildesheim, Germany, and POCT specialist. He is also an EFLM-certified European Specialist in Laboratory Medicine. Professor Gässler is a member of many professional associations, inter alia the American Association for Clinical Chemistry (AACC), the

Professional Association of Scientists in Laboratory Diagnostics (Berufsvereinigung der Naturwissenschaftler in der Labordiagnostik – BNLD) and the German Society of Clinical Chemistry (Deutsche Gesellschaft für Klinische Chemie und Laboratoriumsmedizin – DGKL). He moreover authored and co-authored a number of clinical studies on POCT.



cigarette smoking and chewing gum within 24 hours prior to blood sampling can significantly affect the parameters to be analysed. These are strong recommendations with moderate quality evidence. Specific issues, such as drug monitoring, follow separate guidelines.

All supplies, devices and equipment required for blood sampling should be available, their presence being verified by the person performing the sampling. This is a grade 2C recommendation – weak recommendation, low quality evidence. Correct labelling of the tubes, however, is considered a 1C recommendation – strong recommendation, low quality evidence.

Sampling

The same grade, 1C, is accorded to the wearing of gloves during the actual sampling procedure. Applying a tourniquet is a strong recommendation with high quality evidence (1A).

Selection of the adequate venepuncture site requires precise anatomical knowledge on the course of the arm veins. The authors consider this a strong recommendation with moderate quality

Venous blood sampling – the sequence of steps

Step	Strength of evidence
1. Identify a patient	1C
2. Verify patient is fasting and properly prepared	1B
3. Obtain supplies required for blood collection	2C
4. Label / identify tubes	1C
5. Put on gloves	1C
6. Apply tourniquet	1A
7. Select venepuncture site	1B
8. Clean sampling site	1B
9. Puncture the vein	1A
10. Draw first tube	1A
11. Release the tourniquet	1A
12. Gently invert the tube once (one full inversion)	1B
13. Draw additional tubes following order of draw	1B
14. Remove needle from the vein and activate safety feature	1A
15. Dispose of the needle	1A
16. Bandage the puncture site	1C
17. Tell a patient to apply a gentle pressure for 5 – 10 min and not to bend the arm	1C
18. Invert all tubes 4 times	1B
19. Remove gloves	1A
20. Advise patient to rest for 5 min and ensure bleeding has stopped before leaving the side of venous blood collection	1B

Glossary

- 1A Strong recommendation, high quality evidence**
(Benefits clearly outweigh risk and burdens or vice versa)
- 1B Strong recommendation, moderate quality evidence**
(Benefits clearly outweigh risk and burdens or vice versa)
- 1C Strong recommendation, low quality evidence**
(Benefits appear to outweigh risk and burdens or vice versa)
- 2A Weak recommendation, high quality evidence**
(Benefits closely balanced with risks and burdens)
- 2B Weak recommendation, moderate quality evidence**
(Benefits closely balanced with risk and burdens, some uncertainties in the estimates of benefits, risk and/or burdens)
- 2C Weak recommendation, low quality evidence**
(Uncertainty in the estimates of benefits, risks and/or burdens; benefits may be closely balanced with risk and burdens)

www.uptodate.com/home/grading-guide#GradingRecommendations

evidence (1B). Equally important, according to the authors, is thorough cleansing of the venepuncture site with 70 percent ethyl alcohol or any other appropriate disinfectant prior to sampling.

Alcohol drying times and handling of the disinfected site are described in detail. The next steps, puncturing the vein either with the needle or a butterfly, drawing the blood into the first tube and releasing the tourniquet are strong recommendations with high quality evidence (1A). The authors, moreover, consider the order of draw of utmost importance: blood culture tube, citrate tube, plain tube or tube with clot activator, heparin tube, EDTA tube, glycolysis inhibitor tube (NaF or comparable) and other tubes. Another strong recommendation is inversion, 5 to 10 times, of the correctly filled sample tubes. Gentle removal of the needle and correct disposal in adequate containers is a strong recommendation with high quality evidence (1A).

Subsequent treatment of the wound and asking the patient to apply pressure on the puncture site are strong recommendations with low quality evidence (1C). The tubes are inverted four more times, the gloves are removed and discarded. Correct removal of the gloves is considered a strong recommendation with high quality evidence.

Post sampling

After sampling, the patient should be advised to rest for about five minutes or he/she should be monitored by the person who took the sample until the bleeding has stopped. Communication with the patient that concludes the procedure is, according to the authors, a strong recommendation with moderate quality evidence. In a final section the authors discuss the implementation of the guidelines. Here, national laws and regulations which might pose an implementation barrier or challenge have to be considered. In order to successfully implement these guidelines on correct and error-free venous blood sampling a number of measures need to be taken. Staff has to be trained and refresher training has to be offered in regular intervals. Certification and regular recertification of the training as well as the actual performance of the procedure is useful. In the meantime audits are a suitable instrument to ensure long-term quality.

For hospitals, the authors recommend an implementation team with a team leader who is familiar with all national laws, regulations and recommendations and applies them resp. complies with them in the course of the implementation of the „Recommendations on venous blood sampling“.

The original publication, further relevant publications and material to support implementation (poster, presentation, video) can be found on the Working Group's resource/educational material page (<https://www.eflm.eu/site/page/a/1194>). ■

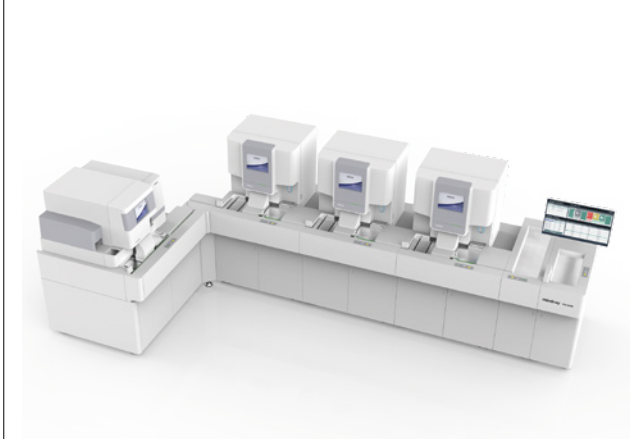
Simundic A-M, Bölenius K. et al (2018), Joint EFLM-COLABIOCLI Recommendation for venous blood sampling, Clin.-Chem. Lab. Med., p. 1-24

Abstract: <https://www.ncbi.nlm.nih.gov/pubmed/30004902>

Pdf for download free of charge: <https://www.degruyter.com/view/j/cclm.ahead-of-print/cclm-2018-0602/cclm-2018-0602.xml>

INTEGRATED HEMATOLOGY

Mindray – CAL 8000 New Generation Cellular Analysis Line



Sample throughput: CBC+DIFF 200-800 t/h, 0-240 slides/h

Highlights: Compared with old product, new CAL 8000 is equipped with more powerful BC-6800Plus analyzers and upgraded sample processing line. There are totally 8 configurations of the new CAL 8000 including 110, 200, 300, 400, 210, 310, 410, 420, where the first digit and second digit mean the amount of BC-6800plus & SC-120 in the line. Besides, buffer module, start/stock yard and turn module also cater to labs with special needs.

Mindray – CAL 6000 New Generation Cellular Analysis Line



Sample throughput: CBC+DIFF 220 t/h, 120 slides/h

Highlights: CAL 6000 is a fixed configuration of Mindray's high-end hematology cellular analysis line, which can connect either two units of BC-6000 or two units of BC-6200 plus SC-120 automatic slide maker. The design of the sample processing line combined with labXpert can perform automatic re-run & re-flex check and smartly control the sample load between two units, which is extremely user friendly and intelligent.

Sysmex – XN-3100 DI



Sample throughput: CBC+DIFF:
Up to 200 samples/h,
Up to 40 samples/h in BF mode per module
SP-50:
Up to 30 samples/h with standard model,
Up to 75 samples/h with high throughput model

Dimensions: 2,000 x 1,150 x 1,630 mm (w x d x h)

Weight: 1,020 kg

Highlights:

- Fully integrated slide maker & stainer
- Choose Advanced Clinical Parameters as needed
- Flexible throughput
- Automatic Rerun & Reflex measurement for challenging samples
- Integrated backup concept
- Digital Imaging (DI) module:
 - Seamless integrated morphology analysis of slides
 - Efficient, detailed review and validation for greater accuracy
 - Faster, improved workflow
 - Long-term storage and archiving of cell images
 - Consistency in analysis quality

Sysmex – XN-9100 Sorting & Archiving



Sample throughput: CBC+DIFF:
From 200 samples/h,
From 40 samples/h in BF mode per module

Dimensions: Depending on configuration

Weight: Depending on configuration

Highlights:

- Scalable and modular haematology automation line
- Flexible configuration of XN analysis modules and rack entry and exit positions
- Discrete rack management
- Uninhibited workflow from routine to specialised testing
- Automatic reflex measurement in case of unreliable results
- Choose Advanced Clinical Parameters as needed
- Advanced sample management with TS-10: sorting for subsequent destinations and automated archiving of samples
- Optional integration of ESR and HbA1C analysis

MICROSCOPY

Olympus – SC180



- Highlights:**
- 18-megapixel camera with fast 4K Live image
 - Dedicated to precise sample documentation even at low magnifications
 - Assisted sample focusing and image noise cancellation

The high-resolution, 18-megapixel SC180 color camera reveals your sample's fine details and structures. The 18 million pixel count exploits the full optical resolution of the objectives, enabling you to make observations exclusively on-screen without using the eyepieces and fostering effective collaboration and audience engagement during full-screen presentations. With a fast 4K Live image, the SC180 camera accelerates routine work, increases throughput in various applications through fast assisted focusing and noise cancellation, and makes the screen the new standard for documentation, evaluation, and discussion.

Olympus – BX53LED



- Highlights:**
- Dedicated LED light source for microscopy (Olympus True Color LED)
 - Ergonomic design for intensive daily usage
 - Highly expandable frame to follow evolving application needs

The BX53 microscope's ergonomic design helps you stay comfortable during extended periods of use while the intuitive control layout enables fast, efficient observation and imaging. Optimized for laboratory applications, Olympus exclusive True Color LED illumination has a high luminosity and color rendering index so you can see samples in real-to-life colors avoiding color casts of generic LED light sources.

HEMOSTASEOLOGY

Greiner – VACUETTE Coagulation Tube



- Highlights:**
- With safety twist cap for an easy manual opening as well as automated opening using decapping instruments
 - Correct mixing ratio of venous blood a sodium citrate is ensured during blood collection, so that the tube contains one part sodium citrate solution to nine parts blood
 - Double-walled technology: the inner tube is made out of polypropylene (PP) and prevents the citrate solution from evaporating; the outer tube is made of polyethylene terephthalate (PET) and ensures a long shelf-life for the vacuum

HORIBA Medical – Yumizen G1550



Dimensions: 1,000 × 600 × 900 mm (w × h × d)
Weight: 85 kg

- Highlights:**
- The Yumizen G1550 is a fully automated, high-capacity coagulation analyzer. Thanks to its unique features, it manages the diagnostic requirements of clinical laboratories with mid to high workload:
- Clotting, immunologic and chromogenic assays
 - Continuous loading
 - Full quality record for traceability
 - Pre calibrated tests
 - Liquid format reagents

Combined with the complete range of HORIBA Medical Yumizen G reagents, the Yumizen G1550 provides a high quality and cost optimized solution.

HEMOSTASEOLOGY

Sarstedt – S-Monovette ThromboExact – Pseudothrombocytopenia



Highlights: The S-Monovette ThromboExact has been developed especially for anticoagulant-induced pseudothrombocytopenia. Generally, pseudothrombocytopenia is caused by thrombocyte aggregation. Early detection avoids the consequences of a thrombocytopenia misdiagnosis.

This blood collection tube is validated internally by Sarstedt and externally at the University Hospital Rostock, Germany.

Sarstedt – S-Monovette Hirudin – Thrombocyte function



Highlights: The S-Monovette Hirudin was developed together with the company Verum Diagnostica, today Roche Diagnostics (bought), for measuring thrombocyte activity using the Multiplate multiple platelet function analyser. Unlike citrate or heparin, hirudin works via direct thrombin inhibition, and thus allows thrombocyte function diagnostics in its native state. It is used for monitoring platelet-inhibiting medications during treatment, as well as for detecting or ruling out thrombocyte function disorders.

Siemens Healthineers – Sysmex CA-600 Systems



Dimensions: Approx. 490 × 566 × 490 mm (h × w × d)
Sample throughput: Approx. 60 PT tests/h
Weight: Approx. 43 kg

Highlights: The Sysmex CA-600 Systems – with the smallest footprint in their class – are built on a history of proven reliability and provide scalable options for routine and specialty* coagulation testing.

- Features clotting, chromogenic,* and immunologic* measurements with true random access
- Enables critical tests to be processed at any time via STAT sample processing
- Offers the most frequently requested routine and specialty tests, including INNOVANCE D-Dimer*

*Sysmex CA-660 System only.

Siemens Healthineers – Sysmex CS-5100 System



Dimensions: Approx. 1,280 × 1,576 × 1,150 mm (h × w × d)
Sample throughput: Approx. 400 simultaneous PT/APTT tests/h
Weight: Approx. 362 kg

Highlights: The Sysmex CS-5100 System – now available in the U.S. – offers high-volume and multisite labs smartly designed PSI technology and automation connectivity for streamlined workflow and high-quality test results on the first run. Simultaneous, multiwavelength PSI technology helps labs to identify and manage unsuitable test specimens prior to analysis. The Sysmex CS-5100 System offers an expansive test menu of routine and specialty hemostasis assays (including several INNOVANCE assays).

Siemens Healthineers – Sysmex CS-2500 System



Dimensions: Approx. 685 × 1,113 × 895 mm (h × w × d)
Sample throughput Approx. 180 simultaneous PT/APTT tests/h
Weight: Approx. 140 kg

Highlights: The Sysmex CS-2500 System – now available globally including the U.S. – offers mid-volume and multisite hemostasis labs smartly designed technologies for improved efficiency, exceptional accuracy, and reliable first-run results. Equipped with next-generation PSI technologies, the system takes hemostasis testing to the next level. The Sysmex CS-2500 System offers an expansive test menu of routine and specialty hemostasis assays (including several INNOVANCE assays), all on a single instrument.

Siemens Healthineers – Atellica COAG 360 System



Sample throughput PT and APTT: 350 (simultaneous analysis)
Dimensions: 1858 × 1,042 × 1,415 mm (w × h × d), without LAS connection
 2,156 × 1,042 × 1,415 mm (w × h × d), with LAS connection
Weight: 600 kg (without LAS connection)
 617 kg (with LAS connection)

Highlights: The Atellica COAG 360 System* offers high-volume specialty hemostasis labs a transformative array of capabilities to streamline and unify hemostasis testing:

- Five methodologies – clotting, chromogenic, immunologic, platelet aggregation and high-sensitivity immunoassay (LOCI) testing
- Primary-tube sample-volume checks, advanced assay-specific sample quality checks for hemolysis, icterus and lipemia (HIL) interference.
- Intelligent reagent and consumable management

*Not available for sale in the US

Sysmex – CS-1600



Sample throughput: Up to 120 tests/h (PT)
Dimensions: 540 × 760 × 690 mm (h × w × d)
Weight: Approx. 85 kg
Assays: 18 simultaneously

Highlights:

- Minimal need for hands-on maintenance
- Perfect solution for medium-size labs with needs for specialty testing
- Proven, reliable technical performance with advanced CS-technology
- High-quality results based on advanced multi-wavelength technology
- Traceability for operation history and results

Sysmex – CS-2400/2500



Sample throughput: Up to 180 tests/h (PT)
Dimensions: 685 × 775 × 895 mm (h × w × d)
Weight: Approx. 110 kg
Assays: 60 simultaneously

Highlights:

- Advanced inhibitor testing with cross-mixing tests
- CS-2400: open tube model, CS-2500: cap-piercing model
- Rule-based rerun & reflex testing
- Gold standard in "light transmission aggregometry"
- Automated, high-accuracy platelet function testing by aggregometry
- High-quality results based on advanced multi-wavelength technology
- Pre-analytic sample checks for interferences and over-/underfilling
- Consolidates routine and specialised testing in a single analysis system

HEMOSTASEOLOGY

TECO – Coatron X



Dimensions: 230 × 140 × 90 mm (w × h × d)
Power Consumption: 110 – 240 Vac, 50 – 60 Hz / 5 Vdc, 3.3 A
Number Of Channels: 1 – 4

- Highlights:**
- Highest optical resolution, enlarged optic range, smallest sample and reagent volume 0,1 mOD – 3,500 mOD, just with 75 µL sample and reagent volume
 - Complete optical analysis
 - No further parts required, like balls, stirrers etc.
 - Adaptation of the light level
 - Automatic light level adjustment of the optic channels to each sample
 - Exclusion of disturbance
 - Stray light reduction, exact temperature control, all parameter are preset

TECO – Coatron A6 Plus



Dimensions: 500 × 950 × 800 mm (w × h × d)
Power Consumption: 90 – 240 Vac, 50 – 60 Hz
Number Of Channels: 6
Weight: 52 kg

- Highlights:**
- Fully automated 6-channel Hemostasis Analyser for routine Coagulation tests
 - Clotting, chromogenic, immunological
 - Quarter test volume (75 µL)
 - High speed testing
 - Biphasic waveform analysis
 - Inclusive multifunctional, reliable Management Software
 - Preset for nine different profiles
 - PT, APTT, TT, FIB, all major Standard Coagulation tests
 - AT, PC special chromogenic Coagulation tests

TECO – Hemostasis reagents



- Highlights:** A complete range of Hemostasis reagents for routine and for differentiated coagulation analysis (chromogenic and immun-turbidimetric tests). Our reagents comply with our high quality standards.
- Prothrombin Time (PT), Activated Partial Thromboplastin Time (aPTT), Fibrinogen (FIB), Thrombin Time (TT), Protein S (PS), Lupus Anticoagulant (LA), Factor V Leiden (PCA), Chromogenic Tests (AT), Protein C (PC), D-Dimer, Dimex D-Dimer, Red D-Dimer, Blue D-Dimer, Deficient Plasma, Reference Plasma, Control Plasma

OTHER

BD Microtainer MAP Microtube for Automated Process



Dimensions: 13 × 75 mm / 250 – 500 µL volume

- Highlights:**
- Designed to help the laboratory running a capillary blood sample as efficiently and effectively as possible by enabling:
- Automated processing
 - Piercable cap
 - One piece standard tube with integrated collector
 - Clearly visible fill lines to ensure proper collection volume
 - Number of inversions illustrated on the tube
 - Patient identification with standard tube label to avoid potential labelling errors

SCANNER

Hamamatsu Photonics – NanoZoomer S210



Highlights: With over a decade of experience in digital pathology, Hamamatsu introduces the NanoZoomer S210.

Features:

- 210 slide scanning capability
- Batch scanning or continuous loading of slides
- High performance
- Cost-effective
- Simple operation
- New sleek design and small footprint

Hamamatsu Photonics – NanoZoomer S60



Highlights: NanoZoomer S60: The most flexible slide scanner for any histology lab – The best of Hamamatsu's know-how, combining flexibility and outstanding image quality.

Features:

- High-speed and sensitivity in fluorescence
- Best image quality both in brightfield and fluorescence
- Double-size slides scan
- Ideal for all research and pathology laboratories

Hamamatsu Photonics – NanoZoomer S360



- Highlights:**
- Real high throughput: Greatly improved throughput (more than 80 slides/h at 40 × mode for 15 × 15 mm sample sizes) and slide capacity of 360 for high workload laboratories.
 - Hassle free: Simple operation and hassle free scanning. New, powerful scan software for fast and easy operation
 - Error free: Robust and stable scanning. Automatic system calibration.
 - Blur free: Sharp focus on entire specimen. Dynamic Pre-Focusing (DPF) method and advanced focus scoring with automated rescan option for higher success rate.

MICROSCOPY

Olympus – UC90 4K Microscopy



- Highlights:**
- Up to 4K UHD image capturing
 - One Camera for Multiple Applications
 - 9-megapixel CCD camera

The 9-megapixel UC90 camera captures it all: brightfield images of superior quality, and up to 4K UHD imaging. Whatever your imaging needs are, expect no less than exceptional results in image quality, sensitivity, dynamic range, and color fidelity. The UC90 offers fluid sample navigation and focusing, making it effortless and convenient to locate regions of interest right on your screen. Excellent microscope imaging has never been as easy and versatile as with the UC90.

MICROSCOPY

Olympus – BX53LED



- Highlights:**
- Dedicated LED light source for microscopy (Olympus True Color LED)
 - Ergonomic design for intensive daily usage
 - Highly expandable frame to follow evolving application needs

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SLIDE PREPARATION

KUGEL medical – Formalin Mixing and Dispensing Station AFMDS-100



- Dimensions:** 600 × 1,320 × 700 mm (w × h × d)
Weight: 120 kg
Power consumption: 250 W / 230 Volt / 10 Amp / 50-60 Hz

- Highlights:**
- Contact-free delution of concentrated formaldehyde with variable quantities of water and a buffer solution
 - Integrated microprocessor allows you to save and recall your settings
 - Control through one single surface with LCD display
 - Transfer to multiple remote work stations for dispensing
 - Is to be connected to the water supply
 - No more tiresome dragging of heavy formaldehyde tanks
 - No direct contact with concentrated formaldehyde and subsequent reduction of formaldehyde contamination in pathologies

PRINTER

Primera Technology – Signature Cassette Printer



- Highlights:** Primera's Signature Cassette Printer is designed for use in pathology and histology labs to print high-resolution text, graphics and bar codes directly onto tissue cassettes helping to reduce the risk of misidentification of specimens. It is available in both a stand-alone manual printer and a fully automated complete system.

- On-demand or batch mode printing
- Black or colour printing
- Cost reduction by inventorying only white cassettes
- Chemical-resistant ink – ensures reliable identification of cassettes
- USB interface – ability to integrate with LIS
- Two years warranty (After product registration within six months)

Primera Technology – Signature Slide Printer



- Highlights:** Primera's Signature Slide Printer can significantly increase the efficiency of labs while helping to reduce the risk of misidentification of specimens.

- On-demand, full-colour printing – prints only the number of slides needed
- Prints directly onto slides – eliminates handwriting that is hard to read and labels that are hard to apply
- Cost reduction by inventorying only white-frosted slides
- Xylene-, alcohol-, heat- and chemical-resistant ink – ensures reliable identification of slides
- PTSlide Software allows connection to LIS systems
- Compact design
- Two years warranty (After product registration within six months)

INFORMATION TECHNOLOGY

Hamamatsu Photonics – NDP.serve3 Image Server Software



Highlights: NDP.serve3 is the next generation of our established image server software. It is a power solution to share and manage whole slide images (WSI) across a network, either as a stand-alone solution or integrated with your LIS/LIMS software.

Key Benefits / Features:

- Secure database with enhanced security functionality
- Intuitive, simple to use graphical user interface
- Easy to share whole slide images
- Seamless integration with NDP.view2 – the fastest Mac and Windows WSI viewer on the market

Visiopharm – QUALITOPIX



QUALITOPIX™
END-TO-END DATA QUALITY

Highlights: Novel & patented technology for monitoring staining performance in between EQA evaluations

Coming Soon: A novel tool to measure and document your daily or weekly laboratory performance and ensure performance variations are kept at a minimum.

Book a demo and opt in to win a Powerbank at <http://bit.ly/2qVregp>

Visiopharm – ONCOTOPIX



- Highlights:**
- ONCOTOPIX Scan
 - Proven performance
 - Fast high quality slide scanner
 - ONCOTOPIX Dx
 - Validated Diagnostic Decision Support
 - Automated Workflows
 - ONCOTOPIX Discovery
 - Dedicated tools for cancer research

Scanners produced by Hamamatsu

Book a demo and opt in to win a Powerbank at <http://bit.ly/2qVregp>

Visiopharm – ONCOTOPIX Quantitative Image Analysis



ONCOTOPIX Quantitative Image Analysis

- Highlights:** Leading IA solution for cancer diagnostics providing:
- Unprecedented high-precision alignment
 - Automated tumor cell detection
 - Enabling Multiplexing and co-localization analysis
 - For protein and ISH test results as well as H&E
 - Revealing information about Tumor Micro Environment

Book a demo and opt in to win a Powerbank at <http://bit.ly/2qVregp>

*Validated for in vitro diagnostic use (CE-IVD) in Europe in combination with the CE-IVD APPs from Visiopharm

DNA

Amplification
Integrated Systems
Extraction
Liquid Biopsy
Research Use Only



AMPLIFICATION

BIORON Diagnostics – RealLine Pathogen Diagnostic Kits



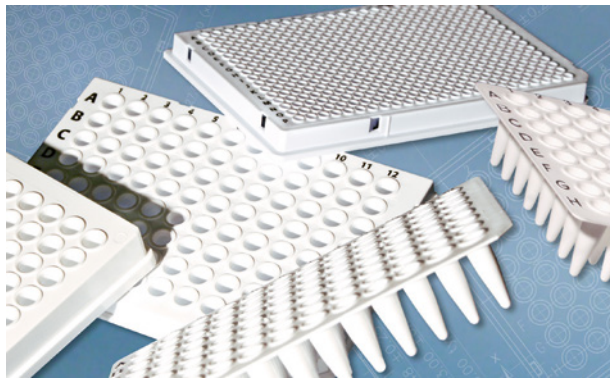
- Highlights:** RealLine Pathogen Diagnostic Kits from BIORON Diagnostics – with outstanding features:
- Lyophilized mastermixes
 - One handling procedure for all kits – simple & fast
 - Same PCR cycling conditions
 - Controls included
 - Multiplexing kits
- For a wide range of parameters:
- STIs: CT, NG, Mycoplasma ssp., Ureaplasma ssp., Gardnerella, Trichomonas
 - TORCH: Toxoplasma and Rubella
 - Herpes-viruses: CMV, HSV-1 and -2, EBV, VZV
 - Tick-borne infections: Borrelia and TBEV (FSME)
 - HPV: kits for HR and LR Human Papilloma Virus types

Orion Diagnostica Oy – Orion GenRead



- Assays:** C difficile, campylobacter
- Highlights:** Orion GenRead system is a small benchtop system for molecular pathogen detection, based on proprietary technology SIBA (Strand Invasion Based Amplification).
- Flexibility with 1 – 12 samples in one run
 - Fast test results are available in less than one hour
 - Ready to use kits contain all needed reagents
 - Bi-directional HIS/LIS connectivity
 - Portable and robust instrument suitable for various laboratory settings
 - CE marked test kits for C difficile and campylobacter. Next: RSV and Influenza A&B

Sarstedt – White Multiply PCR Plates



- Highlights:**
- White wells for improved fluorescence reflection
 - Thin-walled reaction tubes for quick temperature transfer
 - Free from DNA, DNase, RNase and PCR inhibitors
 - Barcode labeling on plates with half or full skirt is available on request

Siemens Healthineers – Fast Track cycler



- Dimensions:** 130 x 150 x 150 mm (w x h x d)
- Weight:** 2 kg
- Highlights:** Compact, real-time PCR platform enables laboratories of all sizes to implement molecular testing with simplicity and speed.
- Compact design fits in any laboratory
 - Robust technology using rotatory magnetic induction
 - Wireless connectivity connects up to 10 FTCs
 - High throughput workflow supports up to 480 reactions

INTEGRATED SYSTEMS

Siemens Healthineers – VERSANT kPCR Molecular System



Dimensions: 924 × 1,254 × 1,043 mm (h × w × d)
Channels: Open-channel
Assays: Syndromically grouped real-time PCR multiplex kits for infectious disease testing

Highlights: Process multiple sample types, run up to six assays per sample, and consolidate Siemens Healthineers molecular tests, IVD assays from other manufacturers, and LDTs on one platform. The VERSANT kPCR Molecular System* reduces manual labor, allowing personnel to spend time on other value-added activities, while providing outstanding assay performance and choice with a broad IVD menu.

*Product availability varies by country.

EXTRACTION

Molzym – SelectNA plus: Pathogen Enrichment & DNA Extraction



Highlights: SelectNA plus is Molzym's unique platform for the automated enrichment and isolation of bacterial and fungal DNA from various specimens.

- Walk-away pathogen DNA isolation
- Human DNA removal (MolYsis technology)
- Flexible extraction: 1 to 12 samples
- Sterile body fluids and tissue biopsies
- Internal UV decontamination
- DNA-free consumables & reagents

Kits for the robot are the MolYsis-SelectNA plus and the CE IVD marked Micro-Dx for the culture-independent routine pathogen diagnosis.

Promega – Maxwell RSC Instrument



Dimensions: 326 × 438 × 327 mm (w × h × d)
Weight: 11 kg
Sample throughput: 16 samples/30 minutes
No of parallel samples: 16
Handheld/Stationary: Very small benchtop instrument

Highlights:

- Instrument and reagents for walk away DNA and RNA purification and quantitation
- Genomic DNA, total RNA, miRNA, viral and bacterial DNA/RNA, ccfDNA from
- Next generation model: including touch pad and Quantus Fluorometer
- Process a variety of sample types for downstream applications in molecular diagnostic and for other clinical applications
- 1 – 16 samples purified in only 30 min
- CE IVD registered
- One-way cartridges, no cross contamination
- For tissue, stool, blood, buffy coat, swabs, plasma, serum and other human sample types

Promega – Maxwell RSC 48 Instrument



Dimensions: 530 × 510 × 220 mm (w × h × d)
Weight: 31 kg
Sample throughput: Up to 48 samples /22 minutes
Assays: Blood, Whole Blood, RNA Blood, RNA Cells, RNA Tissue, DNA FFPE, RNA FFPE , ccfDNA, miRNA, Viral total NA

Highlights:

- High-quality nucleic acid purification with minimal steps and less hands-on time
- Purifies 1 – 48 samples in one run
- Process a variety of sample types for downstream applications in molecular diagnostic and for other clinical applications
- UV decontamination and barcode scanner
- CE IVD registered
- Pre filled cartridges, no cross contamination
- For tissue, stool, blood, buffy coat, swabs, plasma, serum and other human sample types
- Intuitive software and integrated vision system for detecting and preventing errors

LIQUID BIOPSY

BD/QIAGEN PAXgene Blood ccfDNA Tube



Dimensions: 16 x 100 mm / 10 mL volume

- Highlights:** A complete, integrated preanalytical workflow solution for circulating cell-free DNA
- Non-crosslinking preservation of ccfDNA levels
 - Seamless integration with proven ccfDNA isolation kits
 - Streamlined with primary tube sampling during automated processing
 - Designed for sensitive research assays, including analysis of circulating tumor DNA and non-invasive prenatal testing
 - Sample transport and storage at room temperature for up to seven days

Streck – Cell-Free DNA BCT CE



Dimensions: 16 x 100 mm, 9.0 ml draw

- Highlights:**
- Unique direct draw blood collection tube which stabilizes nucleated blood cells
 - Prevents the release of genomic DNA, allowing isolation of high-quality cell-free DNA and CTCs for clinical research studies, drug discovery and diagnostic assay development
 - Cell-Free DNA is stable for up to 14 days and CTCs are stable for up to seven days, at room temperature, allowing convenient sample collection, transport and storage
 - Available in a unique hybrid plastic tube which protects valuable reagent and samples

Streck – Cell-Free RNA BCT



Dimensions: 16 x 100 mm, 10.0 ml draw

- Highlights:**
- Unique direct draw blood collection tube, which stabilizes cell-free RNA in plasma and prevents the release of non-target background RNA from blood cells during sample processing and storage.
 - Cell-Free RNA is stable for up to seven days, at room temperature, allowing convenient sample collection, transport and storage
 - Unique hybrid plastic tube to protect valuable reagent and samples

RESEARCH USE ONLY (RUO)

Eppendorf – BioSpectrometer fluorescence



Dimensions: 50 x 295 x 400 mm (h x w x d)
Weight: 5.4 kg
Power consumption: 15 W (during operation), 5 W (dimmed display)

- Highlights:**
- Absorbance measurement for one or more wavelengths, recording of wavelength scans
 - Sensitive nucleic acid and protein quantification via fluorescence intensity
 - Integrated application and results memory
 - Compatible with microliter measuring cells, such as the Eppendorf µCuvette G1.0, and standard cuvettes

RESEARCH USE ONLY (RUO)

Eppendorf – Mastercycler nexus X2



- Dimensions:** 321 × 250 × 412 mm (h × w × d)
Weight: 11 kg
No of parallel samples: 64/32 * 0.2ml PCR tubes, up to 64 * 0.5ml PCR tubes
Temperature range: 4 – 99°C
- Highlights:**
- Large block for large assays – small block for small assays
 - Optional gradient for PCR optimization
 - E-mail notification
 - Flexlid concept allows use of all types of consumables with automatic height adjustment of the lid

Eppendorf – µCuvette G1.0



- Dimensions:** 48 × 12.5 × 12.5 mm (h × w × d)
Height of light beam: 8.5 mm
Volume: ≥ 1.5 µL (dsDNA)
- Highlights:**
- Microvolume measuring cell for photometric measurements
 - Measurement of small sample volumes (1.5 – 10 µL)
 - Measurement of high sample concentrations without prior dilution
 - Exclusively available for Eppendorf BioPhotometer and Eppendorf BioSpectrometer

Sarstedt – Low DNA Binding Micro Tubes



- Highlights:** As the trend towards decreasing sample volumes continues, it is increasingly important to minimize potential interaction between the analyte and tube. Our low protein and new low DNA binding micro tubes are specifically designed to meet the requirements in protein and DNA analytics while maximizing recovery rates.



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Mass Spectrometry
Identification /
Susceptibility
Microscopy
Other



MALDI-8020
benchtop linear
MALDI-TOF mass
spectrometer

MALDI-8020

Rookie of the year

Small size with massive impact: Shimadzu's benchtop linear MALDI-TOF mass spectrometer

In 2018, Shimadzu celebrates its 30th anniversary in Matrix Assisted Laser Desorption/Ionization Time-of-Flight mass spectrometry (MALDI-TOF MS) with the introduction of the MALDI-8020 benchtop linear MALDI-TOF mass spectrometer. In 1988, the LAMS-50K was the company's first commercially available MALDI-TOF mass spectrometer.

Since then, Shimadzu has continued to improve the performance of the MALDI-TOF platforms through innovative technologies: from the 'KOMPACT' series of benchtop MALDI-TOF systems, leading on to the development of the floor standing Axima range of instruments and culminating with the release of the MALDI-7090 MALDI-TOF-TOF mass spectrometer.

MALDI-TOF MS is now an established analytical technique and is widely used for the analysis of biomolecules (peptides, proteins, oligonucleotides). The advantages of MALDI-TOF MS include speed of analysis, ease-of-use, robustness and low cost-per-analysis, and these benefits have contributed to its success. One application in particular where MALDI-TOF MS has had a significant impact is in clinical microbiology where, thanks to the speed of analysis and simple sample preparation, the technique has revolutionized the field of microbial identification.

Rookie of the year: MALDI-8020

Recently, the market demand for smaller systems for routine MALDI-based workflows, often requiring simpler instrumentation, has seen a return to a benchtop sys-

KEY FEATURES

- Compact benchtop design – main body 450 × 745 × 1,055 mm (w × d × h) weighing just 86 kg
- 200 Hz solid-state laser for faster data acquisition
- Rapid sample introduction through the use of a load-lock system
- Low maintenance (oil-free vacuum system, UV laser-based source cleaning)
- Internal barcode reader compatible with the barcoded FlexiMass-DS sample slides
- Quiet operation (< 55 dB).

tem for Shimadzu with the launch of the MALDI-8020, a compact benchtop linear MALDI-TOF mass spectrometer with class-leading performance.

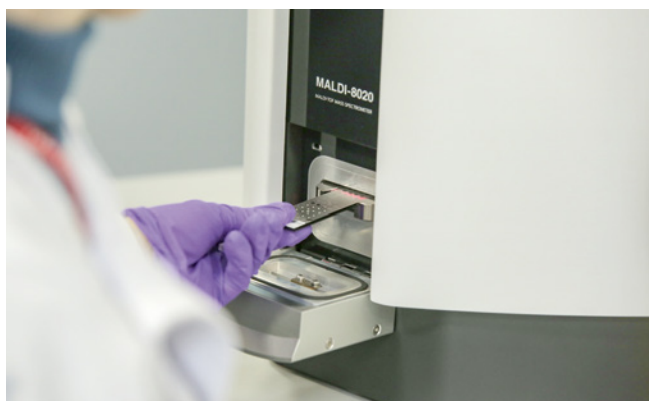
The MALDI-8020 is the newcomer to the Shimadzu family of MALDI products. It combines talents and skills such as outstanding speed, accuracy, and performance. It targets labs specializing in scientific research, as well as labs where quality control methods or rapid screening of intact samples are routine.

Linear MALDI-TOF instruments have traditionally been regarded as low performance, capable only of average mass determination with low resolution. The MALDI-8020 breaks that perception. Innovative instrument design and technological advances have allowed the size of the instrument to be reduced while maintaining the performance specifications of the equivalent larger floor-standing Axima model.

Ideal for researchers developing MALDI-based diagnostic methods

With the higher-throughput capability of the MALDI-8020, simple and secure software is required to manage automated MALDI-TOF data acquisition. From the creation of sample worklists using SampleStation to the automated data acquisition controlled by AuraSolution, these easy-to-use software applications make MALDI-TOF MS amenable to laboratories which may not have considered this technique before.

Using the SampleStation software, sample worklists are prepared indicating positions of the samples on the MALDI slide and associated sample information. The sample worklists are assigned a unique slide identifier e.g. the slide barcode on the single-use, individually barcoded FlexiMass-DS sample slides, and this information is saved to a secure SQL database. An integrated barcode reader scans the slide barcode as it is inserted into the instrument, ensuring that the correct sample worklists are retrieved and analyzed.



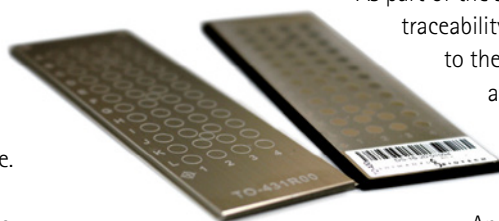
Rapid sample introduction through the use of a load-lock system



MALDI-8020 with the MALDI solutions software

Integrated security features provide user-access control within the software applications, ensuring that data and acquisition methods are protected from unauthorized changes. From creating individual user login accounts to assigning permitted roles, the system administrator has full control over who has access and what functions they are permitted to perform.

As part of the security features, the software provides traceability, indicating when (and by whom) changes to the worklists were made, when samples were analyzed and whether re-analysis has been performed.



FlexiMass-DS sample slides with barcode

MALDI-TOF MS Quality Control (QC):

Another application targeted by the MALDI-8020 is MALDI-based quality control. The QC Reporter software provides a complete solution, from sample list to report generation. The QC criteria can be used to customize the experiment for different applications and include mass tolerance, signal-to-noise threshold, minimum resolution of the target mass and acceptance limits for adducts and impurities. The results of the QC analysis are displayed in a simple user-interface and are color-coded to indicate the test result (pass, query, fail). From here, the operator can review the detailed results before exporting as PDF reports.

With the release of the MALDI-8020, Shimadzu is able to offer an affordable, easy-to-use, benchtop MALDI-TOF mass spectrometer designed to meet current market demands for routine MALDI workflows.



CONTACT

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MASS SPECTROMETRY

Shimadzu – AXIMA iDplus Assurance



Dimensions: 700 × 1,920 × 850 mm (w × h × d)
Weight: 330 kg, excluding data system

Highlights: AXIMA Assurance – Flexibility and Quality:
 The AXIMA Assurance is designed with the general analytical and life science laboratory in mind. Incorporating a variable repetition rate 50 Hz N₂ laser, the system provides high quality and high sensitivity rapid MALDI mass spectra and is particularly suited to identification in the microbiology field. Positive and negative ion modes are included as standard, allowing greater flexibility and extending the compound categories that may be analysed.

Shimadzu – AXIMA iDplus Confidence



Dimensions: 700 × 1,920 × 850 mm (w × h × d)
Weight: 330 kg, excluding data system

Highlights: iDplus Confidence – Sensitivity and Flexibility:

- Rapid microbial identification for research use
- Identifies and classifies strains based on phenotype characteristics
- SuperSpectra reduce the incidence of false positives and ensure robustness and reproducibility
- Open system allows addition of new species / entries to the database or the creation of new databases
- Clustering allows molecular profiling and tracking of change or evolution
- High performance MS for large molecule analysis
- MS/M

Shimadzu – AXIMA iDplus Performance

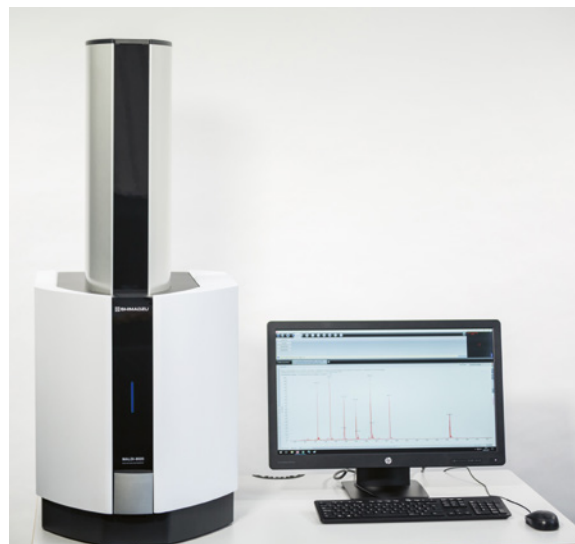


Dimensions: 700 × 1,920 × 850 mm (w × h × d)
Weight: 375 kg, excluding data system

Highlights: iDplus Performance – application-centric solutions:

- Rapid microbial identification for research use
- Identifies and classifies strains based on phenotype characteristics
- SuperSpectra reduce the incidence of false positives and ensure robustness and reproducibility
- Open system allows addition of new species / entries to the database or the creation of new databases
- Clustering allows molecular profiling and tracking of change or evolution
- High performance MS for large molecule analysis
- MS/MS

Shimadzu – MALDI-8020



Dimensions: 450 × 1,055 × 745 mm (w × h × d)
Weight: 86 kg

Highlights: The MALDI-8020 is a benchtop, linear-only MALDI-TOF mass spectrometer designed to meet the needs of laboratories requiring a cost-effective MALDI-TOF platform. This newly designed MALDI-TOF mass spectrometer is functionally simple but provides outstanding MS performance in a compact footprint.

IDENTIFICATION/SUSCEPTIBILITY

FUJIFILM Wako – Toxinometer MT-6500



Dimensions: 350 × 420 × 356 mm (w × h × d)
Weight: 14 kg
Assays: β-Glucan Test for the detection of invasive fungal infection

- Highlights:**
- Quantitative β-D-glucan measurement by kinetic turbidimetric LAL method
 - 16 samples positions, up to 64 positions using MT-6500 Extension Modules
 - Operation of monotest reagents
 - Calibration by QR code scan
 - LIS integration capability
 - Quality control available
 - Maximum 90 minutes measurement time

Sysmex – UF-5000



Sample throughput: Up to 105 (urine), 20 (body fluids) samples/h
Dimensions: 855 × 760 × 754 mm (h × w × d)
Weight: 90 kg

- Highlights:**
- Fully automated urine particle analysis
 - Complete sample analysis in less than a minute
 - Precise detection of bacteria
 - Exclude negative UTI samples with up to 100% NPV
 - Substantial culture reduction
 - Differentiation of gram negative and gram positive bacteria, enabling more specific antimicrobial treatment in real time
 - Integrated body fluid mode
 - Modular concept: Combine with other members of the UN-Series for a fully automated urinalysis workflow

MICROSCOPY

Olympus – CX33



- Highlights:**
- Maintenance free Koehler illumination with LED
 - Fully ergonomic design

The CX33 microscopes enable users to remain comfortable during long periods of routine microscopy observations. The microscope frame conforms to the user's hands and the location of the control knobs maximize ergonomics to improve work efficiency. Users can quickly set a specimen with one hand, while adjusting the focus and operating the stage with the other hand with minimal movement. A fixed Koehler illumination system provides detailed images while minimizing the need for maintenance and the possibility of operator errors. The microscope also features an optional camera port for digital imaging.

OTHER

BD Vacutainer Urine Tubes for Microbiology



Dimensions:
 13 × 75 mm / 4 mL volume
 16 × 100 mm / 10 mL volume

- Highlights:**
- BD offers a range of tube types with boric acid based preservatives all clinically validated to provide 48 hour specimen stability at room temperature.
 - BD Urine System has been proven to have a three times greater chance of achieving accurate urinary tract infection results over an open system.
 - Introduction of closed system has been shown to decrease contamination rates by 19 percent.
 - Research has shown a ten percent lower incidence of bacterial overgrowth and thus reduces the possibility of false positive results.



PROFILE:

Maurizio Sanguinetti is Professor of Microbiology at Catholic University of the Sacred Heart (Università Cattolica del S. Cuore) in Rome, Italy, as well as President Elect and Secretary General of ESCMID (European Society of Clinical Microbiology and Infectious Diseases); and head of the Department of Laboratory Sciences and Infectious Diseases.

Fungal testing plays a critical role in patient care. However, the turnaround for results can be lengthy because the existing tests need 10 samples in a run. Professor Maurizio Sanguinetti, Professor of Microbiology at the Catholic University of the Sacred Heart (Università Cattolica del S. Cuore), in Rome, Italy, is comparing the results of a new test with those from existing tests. Created by the diagnostic division of FUJIFILM Wako, the new β -Glucan Test aims at delivering rapid results from just one test of (1 \rightarrow 3)- β -D-glucan. β -Glucan is a fungal cell wall component that circulates in the affected patients' blood. The ability to detect β -glucan in serum therefore helps to diagnose fungal infections.

One test winning over a run of 10

New β -Glucan test delivers rapid results

Test for high-risk patients

Sanguinetti and team have used β -glucan testing at the university hospital for many years to check patients at risk of fungal infections, particularly candidemia (or fungaemia), which is caused by candida species; infections by saccharomyces, aspergillus and cryptococcus are also fungaemia. Patients who are immunosuppressed, or immunocompromised with severe neutropenia, cancer patients or those with intravenous catheters are more at risk of these.

"We use this to screen patients with a risk of candidemia in ICU in particular," Sanguinetti explained. "If the result is negative, the anti-fungal therapy is not implemented but, if the test is positive, then the therapy is considered. This is very important because by using this approach we save a lot of inappropriate therapies for this type of patient and also save money by reducing consumption of candidids, which is a class of anti-fungals. A single, generic dose, for example, costs € 45-50."

Hematology patients at risk of fungal infection are tested for the presence of galactomannan and β -glucan, with galactomannan being a specific test for aspergillosis, but the process can also highlight the presence of pneumocystis in Aids patients.

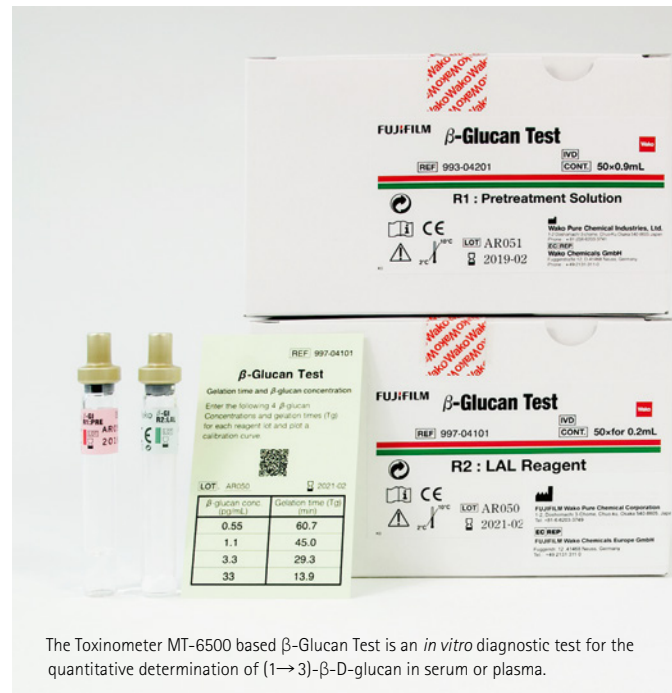
"Sometimes we identify haematological patients with very high levels (500+) of β -glucan and these patients are almost always positive for pneumocystis," he added. The implementation of β -glucan testing is being extended in the Catholic University of the Sacred Heart hospital for non-ICU patients including those on general medical and surgical wards, which brings in other complexities with the use of gauze and immuno-compromising therapies.

While such use of the biomarker is in its early stages, data so far indicates that the test is a useful guide to the introduction of anti-fungal therapy in those areas. Sanguinetti, who is also President Elect and Secretary General of ESCMID (European Society of Clinical Microbiology and Infectious Diseases) and Chief of the Department of Laboratory Sciences and Infectious Diseases, added that abdominal surgery is a common procedure at the hospital but is an area where patients are at risk of candidemia, while patients with rheumatological diseases such as lupus, are also at risk of fungal infections and aspergillosis.

Monotest advantage in emergencies

With the new Fujifilm Wako turbidimetric assay, he said there are technical advantages, in particular that the test is always available with results obtained within one hour. "The most important advantage for the Fujifilm Wako test," he added, "is that it is possible to perform a single test. These tests are especially useful in emergency situations. This is not possible for the Fungitell test because we need to include at least ten samples in the run. With Fujifilm Wako, it is possible to include a single test – a huge advantage for the lab and clinician."

The new test is also advantageous for hospitals that do not work directly with labs, or those needing an immediate result from an emergency patient, or those hospitals with not so many requests for β -glucan.



The Toxinometer MT-6500 based β -Glucan Test is an *in vitro* diagnostic test for the quantitative determination of (1 \rightarrow 3)- β -D-glucan in serum or plasma.

As Sanguinetti points out, "If I need to perform only two tests a day, which is possible in a small hospital, these can be perfectly performed by the Fujifilm Wako test." ■

FUJIFILM
Value from Innovation

Wako

β -GLUCAN TEST EARLY DETECTION OF **INVASIVE FUNGAL INFECTION**

- + *In vitro* diagnostic blood test
- + Monotest format for fast on-site measurements
- + Early detection of invasive infection by *Candida sp.*, *Aspergillus sp.* and *Pneumocystis jirovecii*

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POCT



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Testing
Urinalysis
Information Technology
Other

BLOOD GLUCOSE

Lifotronic – H8 Hemoglobin Analyzer



- Highlights:**
- Reliable partner for diabetes test
 - Ion-Exchange HPLC
 - Gold standard methodology for HbA1C
 - 130 seconds/test (Variant mode)
 - High precision, CV ≤ 1.5%
 - 10 sample positions
 - Variant hemoglobin detection
 - HbA1a/b, LA1c, HbF, A1c, A0
 - No sample preparation required
 - NGSP and IFCC certified

Lifotronic – H9 Hemoglobin Analyzer



- Highlights:**
- Reliable partner for diabetes test
 - Ion-Exchange HPLC
 - Gold standard methodology for HbA1C
 - 72 seconds/test (Fast mode)
 - High precision, CV ≤ 1.5%
 - 110 sample positions
 - Variant hemoglobin detection
 - HbA1a/b, LA1c, HbF, A1c, A0
 - No sample preparation required
 - NGSP and IFCC certified

Reliable Partner for Diabetes Test

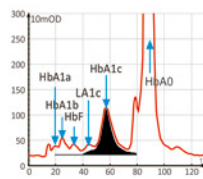
Ion-Exchange HPLC
--Gold standard Methodology for HbA1c



- H9**
- 72 seconds/Test (Fast Mode)
 - CV ≤ 1.5%
 - 110 Sample Positions
 - Variant Hemoglobin Detection
 - HbA1a/b, LA1c, HbF, A1c, A0
 - No Sample Preparation Required



- H8**
- Auto Cap Piercing
 - 130 seconds/Test (Variant Mode)
 - CV ≤ 1.5%
 - 10 Sample Positions
 - Test Range 3%~18%
 - HbA1a/b, LA1c, HbF, A1c, A0



eCL-8000
Electro-chemiluminescence
Immunoassay (ECLIA) System

- Throughput: 85 T/H
- 10 Reagent Channels/30 Sample Positions/ 100 Reaction Positions
- 10 mins for 1st sample result
- Auto Calibration and QC(2 Level)
- Reagent & Sample Liquid Level Detection with Clotting Test
- T3, T4, TSH, PCT, HCG, NT-proBNP, More Items are coming

Lifotronic Technology Co., Ltd.

Tel: 86-755-29060197 Fax: 86-755-29060036
E-mail: inter-marketing@lifotronic.com Web: en.lifotronic.com



BLOOD GLUCOSE

Siemens Healthineers – DCA Vantage Analyzer



Dimensions: 287 × 254 × 277 mm (w × h × d)
Weight: 3.88 kg

Highlights: The DCA Vantage Analyzer makes in-office diabetes testing easy, with accurate, clinically trusted results shown to improve decision making, patient compliance, and outcomes. Get precise HbA1c, albumin, creatinine, and A:C ratio results in minutes with good correlation to laboratory methods and simplify management for POC coordinators with advanced operator, data-management, and security capabilities.
 Product availability varies by country.

CLINICAL CHEMISTRY

DiaSys Diagnostic Systems – InnovaStar



Highlights: InnovaStar – POC testing with superior results in lab quality. A high precision system for the determination of HbA1c, CRP, Glucose and Hemoglobin

- Determination of up to four parameters from one 10 µl whole blood sample
- Sample individual hematocrit correction to plasma values (CRP, Glucose)
- Pre-calibrated test
- Fully automated measurements; no manual steps required
- User-friendly
- Barcoded reagents
- Colored touch-screen

Orion Diagnostica Oy – QuikRead go



Dimensions: 155 × 270 × 145 mm (w × h × d)
Weight: 1.7 kg
Assays: CRP, CRP+Hb, Strep A, iFOBT

Highlights: QuikRead go test system brings reliable, easy and fast testing of CRP, CRP+Hb, Strep A and iFOBT in point of care and other near patient settings. QuikRead go tests are CE marked and in use by thousands of healthcare professionals worldwide. QuikRead go CRP is also FDA cleared for use in clinical laboratories.

- QuikRead go system provides:
- Laboratory-level results in minutes
 - Ready-to-use test kits
 - Ease of use with fully automatic measurement
 - Connectivity to LIS/HIS
 - Next: wrCRP, wrCRP+Hb and HbA1c tests

CARDIOLOGY

Siemens Healthineers – Stratus CS 200 Acute Care Diagnostic System



Assays: Troponin I, D-dimer, NT-proBNP, CKMB, hsCRP, Myoglobin, bhCG
Dimensions: 460 × 580 × 710 mm (w × h × d)
Weight: 68 kg

Highlights: The Stratus CS 200 Acute Care Diagnostic System delivers lab-quality results at the point of care with the speed that is needed for cardiac patients. Its broad menu of tests helps physicians to make more timely assessments, enabling rapid decision making for better patient care.
 Not available for sale in the U.S. Product availability varies from country to country and is subject to local regulatory requirement.

COAGULATION

Siemens Healthineers – Xprecia Stride Coagulation Analyzer



Dimensions: 70 × 170 × 40 mm (w × h × d)
Weight: 0.3 kg

Highlights: The Xprecia Stride Analyzer for PT/INR testing provides four key benefits for testing at the point of care: Usability is enhanced by a bright, interactive touchscreen with step-by-step user instructions; Safety is addressed with the strip eject button to reduce potential biohazard exposure; Efficiency is enabled with ergonomic design and easy sample application; and Accuracy is supported by using the same reagent for the strips used by many central lab analyzers.
 Product availability varies by country

BLOOD GASES, ELECTROLYTES, OXIMETRY

Siemens Healthineers – epoc Blood Analysis System



Assays: pH, pCO₂, pO₂, Na⁺, K⁺, Ca⁺⁺, Cl⁻, Glu, Lac, Crea, Hct
Dimensions: Host: 77 × 27 × 147 mm (w × h × d)
 Reader: 85 × 50 × 215 mm (w × h × d)
Weight: Host: 0.359 kg / Reader: <0.5 kg

Highlights: The epoc Blood Analysis System is a handheld, wireless solution that provides blood gas, electrolyte and metabolite results at the patient's side in less than one minute. Deliver pH, pCO₂, pO₂, Na⁺, K⁺, Ca⁺⁺, Cl⁻, Glu, Lac, Crea, Hct, TCO₂^{*}, BUN^{*} while empowering clinicians to make faster decisions with lab-quality results to improve patient outcomes.
*Not available for sale in all countries.
 Due to local regulations not all products are available in all countries.

Siemens Healthineers – RAPIDLab 348EX Blood Gas System



Assays: pH, pCO₂, pO₂, Na⁺, K⁺, Ca⁺⁺, Cl⁻, Hct
Dimensions: 385 × 382 × 353 mm (w × h × d)
Weight: 9.4 kg

Highlights: The RAPIDLab 348EX Blood Gas System is a cost-effective solution for low-volume laboratory settings. Report accurate patient results from a whole-blood sample in 60 seconds, with minimal operator interaction. Increase operator efficiency with bar-code data entry of patient and operator IDs, automatic sample aspiration and calibrations.
Not available for sale in the U.S.
 Product availability varies by country.

Siemens Healthineers – RAPIDLab 1200 Blood Gas System



Assays: pH, pCO₂, pO₂, Na⁺, K⁺, Ca⁺⁺, Cl⁻, Glu, Lac, Neonatal Total Bilirubin, CO-oximetry
Dimensions: 230 × 240 × 610 mm (w × h × d)
Weight: 2.5 kg

Highlights: Siemens RAPIDLab 1200 Blood Gas System is uniquely designed to meet high-volume critical-care testing needs. The system has an ultra-fast sample processing and microsample capability, with results in 60 seconds. Cartridge-based reagent system simplifies operation, and Ready Sensor technology offers reliability with minimal maintenance.
Product availability varies by country.

BLOOD GASES, ELECTROLYTES, OXIMETRY

Siemens Healthineers – RAPIDPoint 500 Blood Gas System



Assays: pH, pCO₂, pO₂, Na+, K+, Ca++, Cl-, Glu, CO-oximetry, Lac

Dimensions: 300 × 550 × 420 mm (w × h × d)

Weight: 16.55 kg

Highlights: RAPIDPoint 500 Blood Gas System delivers the accuracy and reliability you've come to trust in an easy-to-use, maintenance-free solution designed for the point of care. Gain a comprehensive critical-care menu for multiple sample types in 60 seconds. Siemens Healthineers long-lasting cartridges, integrated AQC, and proven technologies maximize uptime.
Product availability varies by country to country.

INFECTIOUS DISEASES TESTING

Atlas Genetics – Atlas Genetics io system



Dimensions: 268 × 260 × 384 mm (h × w × d)

Weight: 10 kg

Assays: Sexually Transmitted & Hospital Acquired Infections

Highlights: The Atlas Genetics io system is a rapid diagnostic platform designed for use in decentralised laboratories, point-of-care and other near-patient settings, providing a laboratory-accurate test result in 30 minutes. The io system, comprising a small, low cost, easy-to-use instrument and a test-specific disposable cartridge, delivers a 'test and treat' solution for Sexually Transmitted Infections (STI) and Hospital Acquired Infections (HAI), where a rapid, actionable test result, delivered on-demand, can reduce costs and improve patient outcomes.

URINALYSIS

Analyticon Biotechnologies – Urilyzer 500 Pro



Sample throughput: Up to 500 tests/h

Assays: Glucose, Blood, Ketones, Nitrite, Protein, Leucocytes, Bilirubin, Urobilinogen, pH-value, Specific Gravity, Ascorbic Acid

Highlights:

- Quality control management with reminder function, lot number and expiration date check
- Operator management with multiple authorization levels and operation settings
- Touch screen, autostart function, microscopy flag (sediment recommendation), continuous loading system
- Data management with advanced data entry and flexible, customized testing and reporting options
- Memory of 5,000 patient tests and 1,000 QC tests

Lifotronic – ACR-300 – Fully Automated Urine ACR Analyzer



Highlights:

- One sample, three results
- Test items: mALB Creatinine ACR
- Throughput: 17 tests/hour
- 21 sample positions (including one STAT position)
- Precision: Repeatability CV ≤ 5%, Stability CV ≤ 5%
- Accuracy: ≤ ± 8%; Contamination: ≤ 0.5%
- Automatically sample loading
- Two methodology test channels working simultaneously
- 6 µl random urine sample without dilution
- Three results in 3.5 mins

Siemens Healthineers – Atellica 1500 Automated Urinalysis System



Sample Throughput: 106 – 240 samples/h

Assays: Bilirubin, Clarity, Color, Glucose, Ketone, Leukocyte esterase, Nitrite, Occult blood, pH, Protein, Specific gravity, Urobilinogen, Albumin, Albumin-to-creatinine ratio, Creatinine, Protein-to-creatinine ratio

Dimensions: 1,260 × 625 × 680 mm (w × h × d)

Weight: 114 kg

Highlights: Combining the CLINITEK Novus Analyzer and the new Atellica UAS 800 Analyzer* into one completely automated unit, the Atellica 1500 Automated Urinalysis System sets the new standard for accuracy and efficiency. It is a truly digital automated urinalysis system, and lets you manage more samples with less staff in shorter time, while never compromising on high-quality results.

Not available for sale in the U.S. Product availability varies by country.

Siemens Healthineers – CLINITEK Status Connect System



Assays: Albumin, Bilirubin, Creatinine, Glucose, Ketone, Leukocytes, Nitrite, pH, Protein, Specific gravity, Urobilinogen, Albumin-to-creatinine, hCG

Dimensions: 171 × 185 × 272 mm (w × h × d)

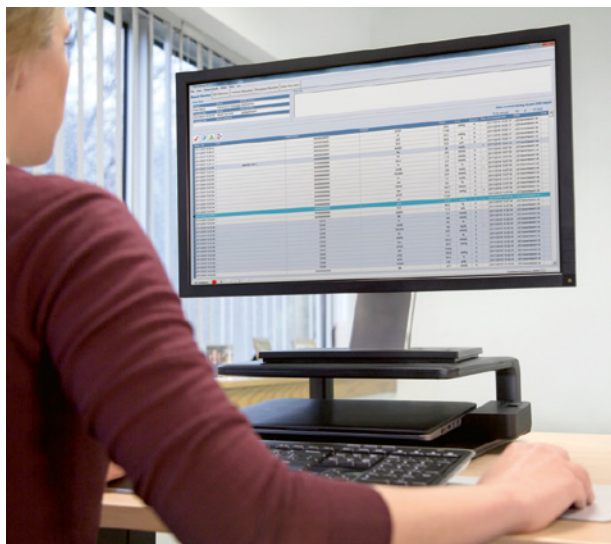
Weight: 2.3 kg

Highlights: The CLINITEK Status Connect System provides flexible connectivity solutions, data integration, and operational control to improve risk management at the point of care. Latest software includes WPA2-PSK wireless security and encryption. Auto-checks help to eliminate errors, mitigate risks, and support compliance. The automated analyzer is faster than manual testing, and helps reduce the chance of human error.

Product availability varies by country.

INFORMATION TECHNOLOGY

Siemens Healthineers – POCcelerator Data Management System



Highlights: Connect securely with an open, reliable POC informatics platform. Gain vendor independence and free choice in selecting the appropriate POCT device to meet your clinical requirements. Create a long-term solution that saves time and money by simplifying the complexity and cost of maintaining multiple IT systems.

Product availability varies by country.

OTHER

INPECO SA – PROTUBE



Highlights:

- ProTube is the smart solution to avoid pre-lab errors that ensures the full traceability of the biological samples throughout the collection process.
- ProTube enables the correct match of right patient with the right tubes, applies the right label, closes the patient loop with the samples validation and their transportation.
- ProTube is available also in a mobile version with a handheld device for assisting in sample collection at the Point of Care environment.

OTHER

JADAK – HS-1R Handheld HF RFID Reader



Dimensions: 33.4 × 51.3 × 108.2 mm (h × w × d)
Weight: 98 grams
Handheld/Stationary: Handheld 1D & 2D barcode scanner with HF RFID reading & writing functionality

Highlights: The flexpoint HS-1R from JADAK integrates 1D & 2D barcode scanning with HF RFID reading & writing functionality. Sure to be an integral part of many medical and clinical applications, the HS-1R enables patient ID via wristband scanning, clinician security login via badge scanning, pharmaceutical applications incl. drug inventory tracking & digital signature capture using built in camera modes, and much more. JADAK products can be tailored to meet specific customer requirements.

Lifotronic – PA-600 Fully Automated Specific Protein Analyzer



Highlights:

- Automatically load sample, mix, add reagent and test
- No pretreatment request for all sample types
- Test items: CRP, Hs-CRP
- Throughput: 30 T/hour
- Precision: CV ≤ 5%
- Automatically adjust rinse procedure to remove residue
- RFID card with built in QC curve, no manual QC required

Lifotronic – FA-160 Immunofluorescence Analyzer



Dimensions: 270 × 100 × 200 mm (w × h × d)
Weight: 2.7 kg

Highlights:

- NGSP/IFCC certified POCT analyzer
- Fluorescence quantification
- Throughput: 15 – 20 samples
- Channels: six incubation channels
- Precision: CV ≤ 3%
- Get results in 3 to 15 minutes
- No sample pre-treatment required
- Test items: HbA1c, CRP, PCT, HCG, NT-proBNP, cTnI, MYO, CK-MB, H-FABP, Hs-CRP, Di-dimer, mAlb, Cys-c, Plasmodium Falciparum, Plasmodium Vivax

Sarstedt – Minivette POCT / Capillary Blood Collection



Highlights:

- Collection devices for Point-of-Care tests
- Easy sample recovery
- Precise and dispensing of small whole blood volumes
- Prevents spillage during transfer
- Volume range: 10µl – 200µl
- Preparations: Neutral, Heparin and EDTA

Information Technology

LIS, Middleware, POCT
Inventory Management
Specialties





Criteria for the selection of a laboratory information system

Marry in haste, repent at leisure...

When you buy a laboratory information system (LIS) you buy more than software – you enter into a long-term relationship with a software vendor. The list of selection criteria is long, but which topics are simply 'en vogue' and which issues tend to be underestimated?

By Markus Neumann, Harald Maier, Gabriele Egert

The decision to buy a laboratory information system (LIS) – more precisely: the decision for the cooperation with one or more software vendors – is based on a whole slew of criteria, and like in many long-term relationships there is an initial sense of adventure involved but the quality can only be assessed after several years.

There are obvious hard economic, technical and functional criteria which can easily be expressed in figures. Other, rather soft criteria are more difficult to pin down and quantify; nevertheless they should inform the purchasing decision as they frequently shape the quality of the cooperation between vendor and user. At the end of the day the purchasing decision is the result of balancing these hard and soft factors.

Specifications

The requirements are the foundation of the specifications document which, as a component of the tender procedure, is provided to the bidders. If no IT specialist is on the team the support of a consulting company might be advisable. The checklist in Figure 1 can serve as an initial overview of the topics to be covered.

The vendors that will be invited to submit a quotation need to be selected carefully. Criteria are inter alia data on the vendor company such as financial position, the number of years of continuous activity on the market and responsibility/accountability. Visits to reference labs and the information exchange with users frequently offer important impressions and insights. But beware: While the above criteria might be important, they do not provide a guarantee that the software will continue to be developed on the long run.

Technical criteria

Hard data concern above all software, hardware and database structure. Which operating systems, programming languages and web technologies will be used? How does the database perform under heavy workload? An important question is user autonomy. How useful is it to be able to customize parameters, e.g. database queries? Which types of training are included in the offer and at

what prices? And finally the support of physical interfaces has to be ascertained: are popular interface protocols such as HL7/IHE or ASTM used and how are they integrated in the lab instruments on the practical level. Programming customized device interfaces is the core business of most vendors and can over the course of the years amount to several thousand euros per analyzer – a significant position in the budget.

The interface issue is also relevant in terms of background processes such as billing and controlling or external communication with physicians' offices to exchange order data and results.

Functional criteria

Many of the modules listed in the table under "Functions" are now being offered by every vendor. Nevertheless it does make sense to look into the procedures and review how they are controlled by master data and parameters.

Today it is important to consider that many lab workflows have to meet certain standards. Quality management standards or ISO 15189, 17025 or even ISO 22870 for POCT are more or less obvious; others such as GMP for blood donations or those for own blood donations are less well known.

	FEATURE	EXPLANATION
COMPANY	Size, financial position	Number of permanent and freelance staff, revenue, core business
	Continuity, accountability/responsibility	Type of company, year of incorporation, guarantees, ISO certification
	Reference customers	Number, size, scope, reputation
	Customer testimonials	Adherence to deadlines and delivery schedules, keeping promises, commitment of the staff, cooperation with manufacturers of instruments, LIS and HIS
	Soft skills	Personality and competence of the vendor's staff during a conversation
	Implementation concept	Is it comprehensible? volume, visualization of the solution
	Service	Hotline, response time, availability of specialists
	Training	Documents, online support, on-site training, seminars
PRODUCT	Architecture	Client-server architecture, periphery, central master data server
	Hardware	Central computer, PC network, terminals, printers, storage space, operating system
	Software	Data base, data protection/privacy concept and confirmations, use of standard software, customization of parameters (by user)
	Response time	Depending on volume of data in the database, number of web connections and online users (particularly relevant for multi-site facilities)
	Maintenance contracts	Type and scope, hardware, software, remote access
	License policy	Online devices, database, multiple installations (campus license), pay-per-use (instead of purchase)
FUNCTIONALITY	Modules	Clinical chemistry, microbiology, blood bank, pathology, billing, order entry, automation and control
	Data protection/privacy concept	Permission-based, controlling access to patient data (e.g. lab values)
	Tracking	Search and sort functions, order status and sample tracking
	Compliance	RiLi-BÄK (in Germany), ISO 15189, ISO 17025, ISO 22870, GMP, etc.
	Master data management	Data maintenance, parameters, copying, use of legacy data, across modules
	Order entry and capturing of results	Keyboard, card reader, order entry, material ID, different bar codes, device interfaces
	Quality control	RiLi-BÄK (Germany), Westgard, other quality systems, visualization
	Technical and medical validation	Autovalidation, rules, alarms, automated repeat measurements, visualization
	Reading	Sort criteria for orders and lab, rules systems, ICD codes, footnotes in identical texts
	Billing	Multi-client capability, service portfolio, accrued accounts
	Archiving	Procedure, duration, access, reactivation, archiving of image data
	Statistics	Saved and spontaneous queries, SQL assistant, export to standard software
INTEGRATION	Configurability	Adaptation of software and user screens to the on-site situation
	Internal communication	Link to HIS and departments/wards, POCT devices, decentral printers, standard interfaces can be configured (HL7, IHE, LDT, ASTM)
	External communication	Link to other hospitals, specialist physician labs, lab groups
	hardware	Use of existing printers, scanners, PC, receipt readers
	Existing data	Use of legacy data, retaining the identification logic
RESULTS	Costs	Acquisition costs incl. commissioning, database, operating costs
	Own contributions	Which contributions are required (configuration, AP computer, preparation of hardware and server), database license, training by in-house staff
	Costs over a period of five years	These costs indicate whether a Europe-wide tender is required

Figure 1: Checklist for the selection of a lab information management system

Generally speaking there is a trend towards process monitoring. If a lab has standard operating procedures (SOPs) they can visualize the specific workflow of core processes in the lab to ensure that the relevant standards are met. Lab users should have easy access to quick visual overviews of the processes, e.g. on a process monitor.

One of the major challenges today is data protection. In view of the fact that many people with widely differing levels of training and tasks are involved in the processes, access to sensitive data in the central lab and at the POCT sites has to be clearly defined. Thus a detailed data security concept is integral component of any LIS offer. One aspect to be addressed in such a concept is the use of legacy data since the implementation of a new LIS usually involves replacing an old system.

One stop shopping has long ceased to be the guiding principle. For some functionalities software is better sourced from a specialist. Case in point: document management and document control programs that facilitate the tasks of quality managers.

Economic criteria

The price is one of the easier factors to define. Even when the exact implementation and operating costs of an LIS cannot be determined pre installation down to the last euro an estimate is possible and necessary since tenders with an amount of € 209,000 spread over a period of five years have to be published Europe-wide. Cost items to be considered are licencing fees, e.g. for database or execution environment; costs for the software implementation and customiza-

tion and finally for support and maintenance contract; plus obviously the costs for hardware such as computers and printers. In this context it is important to figure out which services can be provided in-house either by the lab itself or by the hospital and which existing infrastructure elements can be used. The purchasing process often provides an excellent opportunity to finally part with obsolete technology.

Software and hardware installation might well be performed by in-house IT staff. Training conducted by the in-house team during the implementation phase can help reduce costs. The implementation of an electronic order entry system requires the entire staff to be trained. Since this might entail thousands of training hours it makes sense to have only key users receive training by the software company.

Conclusion

Purchasing a new LIS is one of the biggest challenges any lab has to master. While at first it appears to be a daunting task it is also an opportunity to have a close look at all processes, weed out inefficiencies and update tried and tested workflows. This is why a good LIS vendor is a partner for life – in prosperity and adversity. ■

The article was first published in Trillium Diagnostik 2018.



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LIS, MIDDLEWARE, POCT

Beckman Coulter – PROService



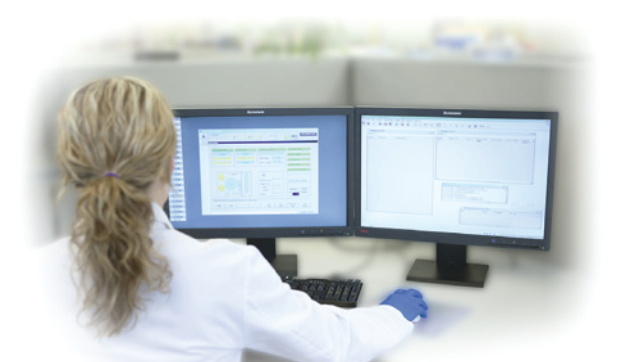
Highlights: PROService is Beckman Coulter's secure remote management and diagnostics system that enables the transfer and analysis of performance data from connected Beckman Coulter systems in the customer laboratory to the customer support staff. This information is channeled into the PROService system's suite of features and tools, enabling the service and support teams to review, diagnose and help resolve system issues quickly and efficiently. PROService remote management system can help labs maximize uptime, enhance efficiency, and improve productivity.

Beckman Coulter – REMISOL Advance



Highlights: REMISOL Advance is an enterprise data management solution that can help manage lab workflow, improve the efficiency of labs and standardize operations across multiple sites. It is a unique software product that consolidates patient test information from multiple instruments in the lab or from multiple labs in the hospital network. REMISOL Advance features virtualization capability to help reduce failure points, increase uptime, and enhance patient data security. It offers an integrated visual management system to track and trace transported samples from the draw site to the lab enabling your lab to become ISO 15189 compliant. Not available in all geographies.

Beckman Coulter – DxONE Command Central Workstation



Highlights:

Beckman Coulter's DxONE Command Central remote monitoring system helps manage lab workflow and improve decision-making steps. Connecting up to 18 instruments or automation systems, and up to five networked DxONE Command Central workstations within a single laboratory, this increase in flexibility allows the operator to place DxONE Command Central workstations in prime locations for optimum laboratory management. DxONE Command Central provides lab technicians with a real-time view of laboratory systems from a single point of control to maximize workflow efficiencies. DxONE Command Central works with data managers such as REMISOL Advance to achieve workflow efficiencies, or can serve as a stand-alone product for users to monitor automation and/or multiple analyzers and quickly respond to any instrument issues. In addition to serving labs that don't utilize data management software, DxONE Command Central provides an opportunity to apply other Beckman Coulter information systems and workflow solutions all while keeping an eye on what is going on in the lab.

i-SOLUTIONS Health – LabCentre



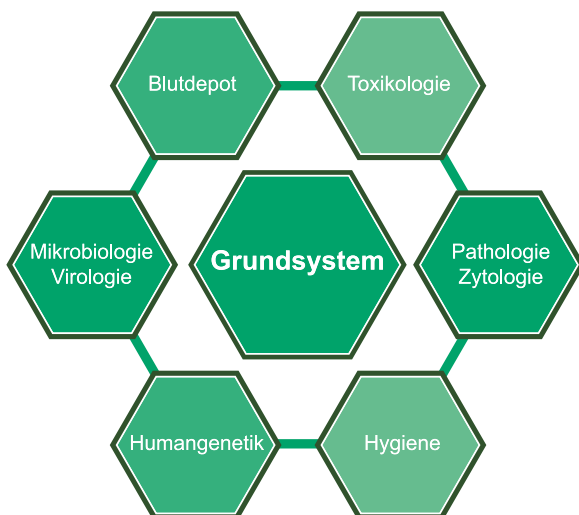
Highlights:

LabCentre is a market-leading laboratory and pathology information management system. It helps doctors, scientists, technologists and management staff to track samples and testing processes, communicate results to other health professionals, and monitor costs and reporting.

LabCentre supports the following disciplines:

- Blood Sciences
- Microbiology
- Hygiene
- Transfusion Medicine
- Pathology
- Billing

Medat – Laboratory Information System



Highlights:

- Flexible, private company with 50 employees.
- Complete solution from order entry to billing.
- Tailor-made modules for microbiology, virology, environmental hygiene, cytopathology, histopathology, clinical chemistry, serology/toxicology and blood banking
- Single, integrated system for all divisions and sites.
- Reliable operation in some of Europe's biggest laboratories.



Integrated
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www.labcore.de

LIS, MIDDLEWARE, POCT

Siemens Healthineers – Atellica Process Manager



Highlights: Uncover inefficiencies and optimize clinical operations with built-in analytics and business intelligence. Identify and resolve pre-analytic, analytic and post-analytic problems with advanced performance metrics. Increase productivity with centralized oversight to control systems*, view reagent levels and review exceptions from one screen. Deliver transparent, predictable TAT using rules and at-risk sample alerts.

*Instruments require VNC or Remote Desktop capability. Not available on all systems.

Siemens Healthineers – Atellica Data Manager



Highlights: Open, scalable, easy-to-use solution with powerful rules to standardize testing, enhance QC and streamline result management. Enhance visibility, automate processes, autoverify results and centralize mgt. of analyzers, automation, sites and networks to increase productivity. Reduce errors and process variation with consistent review/reporting. Sharpen clinical focus with details needed to make informed, accurate decisions.

Under development. Not available for sale. Future availability cannot be guaranteed.

INVENTORY MANAGEMENT

Siemens Healthineers – Atellica Inventory Manager



Highlights: Get the right materials at the right time – Atellica Inventory Manager* provides automated, real-time control of reagents and consumables across multiple locations to reduce costs, save time, and improve lab quality.

*Product availability varies by country.

SPECIALTIES

COMED – RMS / SHS-WEB / SHS Mobile App / E-Commerce (B2B)



- Highlights:**
- RMS – Reagent Management System is the leading inventory management, supply chain, laboratory controlling and e-commerce solution for labs.
 - SHS-WEB 3.2 is the browser-based healthcare ERP front-end for RMS or as a stand-alone-solution.
 - COMED "Scan & Go" with SHS Mobile App – the universal solution for scanning every barcode-types (1D, 2D, QR, RFID...) in laboratories, clinics and surgeries
 - Universal & independent B2B-e-commerce for orders, delivery notes and lot control: COMED-customer remains „DATA OWNER"

COMED was founded in 1986 and evolved to an international solution provider for material management and lab controlling. COMEDs' unique fusion of IT, consulting and extensive industry know-how and a broad personal network, nowadays serves > 22,000 physicians, > 500 hospitals and > 400 laboratories in 18 countries worldwide with one goal: Enable laboratories, hospitals and rehab clinics to focus on their core business and gain their value-added chain.

Non-Diagnostic

Blood Collection
Pipette Tips
Compressors
Specialties

BANDELIN
Ultraschall seit 1955

 **DÜRR
TECHNIK**

 **BD**


greiner bio-one

 **ibidi**
cells in focus

 **SARSTEDT**

BLOOD COLLECTION

BD Vacutainer UltraTouch Push Button Blood Collection Set



- Highlights:**
- This wingset for standardized blood collection reduces accidental needle sticks up to 88 percent
 - Single-handed, in-vein safety activation instantly retracts needle after use
 - Minimizes patient discomfort
PentaPoint bevel requires 32 percent less penetration force
 - Improved venepuncture Ultra-thin RightGauge cannula allows a better flow due to the needle's larger inner diameter. Therefore the use of a smaller gauge is suitable for more veins, without compromising filling times or sample quality

Greiner – VACUETTE Safety Blood Collection Sets



- Highlights:**
- Specially developed for blood collection from patients with difficult vein conditions
 - Protection from the risk of needlestick injuries
 - Simple activation of safety mechanism
 - Transparent view window provides clear vein entry indication
 - Particularly safe due to activation of the safety mechanism while the needle is still in the vein
 - More flexibility due to assorted tube lengths for blood collection
 - Optional use as an infusion set

Sarstedt – S-Monovette – Venous Blood Collection



- Highlights:**
- S-Monovette – The Revolution in Blood Collection. A blood collection system that combines two blood collection techniques – the aspiration technique and the vacuum technique.
 - The S-Monovette is suitable for all vein conditions and achieves an optimal sample quality, thereby producing the best results.
 - The aspiration technique is a gentle technique for routine blood collection. Using the vacuum technique, a "fresh" vacuum is always available.
 - Suitable for all ages, from young to old, the S-Monovette is as individual as your patients.

Sarstedt – Microvette – Capillary Blood Collection



- Highlights:**
- Flexible capillary blood collection systems such as the Microvette – tailor-made to the individual needs of each patient group.
 - Different patient groups and collection techniques require different collection systems.
 - With a nominal volume range from 100 – 500 µl, the capillary blood collection systems product range is one of the most extensive in the entire market.
 - Depending on the requirements, our portfolio includes Microvettes with conical or round bottom inner tubes and the option for various different collection techniques, end-to-end or with a collection rim.

PIPETTE TIPS

SARSTEDT – Low Retention Pipette Tips



- Highlights:**
- Minimising sample loss
 - Optimised surface for enhanced dispensing behavior
 - Improved sample recovery
 - Minimal sample loss of highly viscous liquids or samples containing detergents
 - Cost savings in valuable reagents

COMPRESSORS

Dürr Technik – SICOLAB – compressor stations



- Air flow:** Up to 145 l/min at 5 bar
Compressed air quality: Up to 1:3:1 (according to ISO 8573-1)

- Highlights:**
- Oilfree compressed air for many applications
 - Silent – thanks to excellent soundproofing (48 – 54 db [A])
 - Compact – fits under the laboratory bench
 - Mobile – with wheels or handling grips
 - Wide variety of versions
 - Membrane dryer and filters as options

SPECIALTIES

BANDELIN – SONOPULS - Ultrasonic homogenisers series HD 4000



- Highlights:** Homogenisers are mainly used for homogenising, desagglomerising, emulsifying, suspending, acceleration of chemical reactions as well as for disruption of cells, bacteria, fungi or spores. Significantly reduced processing times and quickly available results make the ultrasonic homogenisers indispensable for modern processes and in analysis. Using ultrasonic homogenisers certain substances can be selectively destroyed, tedious preparation processes can be shortened and results of many reactions are improved.

BANDELIN – SONOSHAKE - Ultrasonic bath combined with shaking device



- Highlights:** SONOSHAKE offers a wide range of applications for sample preparation in many areas of analysis, for example, in environmental and foodstuffs analytics as well as in the area of medical diagnostics. Sedimentation in the sample can be solved by defined shaking. An additional sonication allows a good homogenising. The shaking device SA 1028 can be added to existing ultrasonic bath DT 1028 F.

SPECIALTIES

BANDELIN – SONOCOOL - the only ultrasonic bath with cooling



Highlights: Using SONOCOOL, the catalytic effect of ultrasound can now be used on heat sensitive samples in analysis laboratories. The cooling function means that exothermic reactions can be controlled and the processes are carried out faster and more effectively. The results are available in a shorter time.

ibidi – Cell Culture & Imaging Chambers



Highlights: Choose from the wide variety of ibidi imaging chambers.

- Innovative labware solutions for live cell imaging and cell-based assays
- Excellent cell culture conditions on the unique ibidi Polymer Coverslip
- Supreme optical-grade imaging chambers for high-end microscopy
- Available in various open formats or channel slides
- Test with a free sample!

SARSTEDT – Sediplus Sedimentation System



Highlights:

- Venous and capillary blood collection systems for blood sedimentation with matching accessories and devices for automatic detection are available.
- The automatic blood sedimentation system Sediplus S 200 with 10 measurement positions, and the Sediplus S 2000 with 40 positions (can optionally be extended to 160 positions) for a high sample throughput, optimise ESR measurement.
- The S-Sedivette venous blood collection system enables hygienic, easy handling in an enclosed system. The Microvette CB 200 ESR blood collection system is designed for 200 µl of blood only and ensures minimal patient discomfort when collecting blood. Both systems are proven to perform well in comparison with the Westergren method.

SARSTEDT – Cell Culture Products



Highlights: For over 20 years Sarstedt has produced a wide range of high quality cell culture products which are distributed worldwide. These many years of experience and knowledge of the needs of users have allowed us to optimise and continually expand the product range.

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