

€ 15.-



Your guide to laboratory and pathology equipment in Europe

# LAB BOOK

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

# 2014



MAGLUMI 800, as a new member of MAGLUMI chemiluminescence immunoassay (CLIA) analyzers, shares 109 parameters of MAGLUMI reagents which feature state-of-the-art illumination and separation technologies. Comprehensive test menus help your lab to do more with less for routine and specialty immunoassays. Please see page 20

# Imprint

*Published by:*

**EUROPEAN HOSPITAL Verlags GmbH**

Theodor-Althoff-Straße 45, 45133 Essen, Germany

☎ +49 201 87126 851

☎ +49 201 87126 864

✉ info@european-hospital.com

www.european-hospital.com



**Dr. Neumann & Kindler Ltd. & Co. KG**

Herner Straße 324, 44807 Bochum, Germany

☎ +49 234 957 1969 0

✉ info@labcore.de

www.labcore.de

**Editor-in-Chief**

Markus Neumann

**Executive Director**

Daniela Zimmermann

**Layout and graphic design**

Erik Dreifke, Cologne, Germany

**Advertising**

Ben Giese (U.S.A., Canada)

Gavin Hua (China)

Eric Jund (E, F, I)

Simon Kramer (B, GB, L, NL)

Ralf Mateblowski (D, A, CH)

Jane Park (Korea)

Hanna Politis (U.S.A., Canada)

**Subscription**

Janka Hoppe, jh@european-hospital.com,

Subscription rate: € 15,- plus postage

**Printed by**

Margreff Druck, Essen, Germany

The information and opinions expressed in articles and product entries published in LABBOOK are solely those of the manufacturers / companies, their authors and contributors, for which the publisher holds no responsibility.

Errors and omissions excepted.

© 2014 by EUROPEAN HOSPITAL Verlags GmbH.  
All rights reserved



# Dear Reader,

we are proud to present the Labbook, a compact overview of commercially available lab products and systems for European lab professionals.

Labbook covers a broad range of laboratory disciplines from clinical chemistry to microbiology, analytical techniques from electrochemistry to mass spectrometry, and equipment from consumables to compressors. Many diagnostic and IT companies have joined to present this comprehensive buyers' guide for the lab – addressing the needs of organizations of all sizes.

Thus you can use this book in many ways: it provides you with a compact overview of the hot topics in the lab. Moreover it will guide you through your decision-making process for the purchase of analysers, accessories and software. Consequently, this book invites you to request additional information from the suppliers – most easily done from the e-paper on [www.labbook.eu](http://www.labbook.eu) where each product entry links directly to the manufacturer's website.

The diagnostics industry addresses the magic triangle of time, quality and costs in many fields – so does the Labbook. POCT reduces the time between diagnosis and therapy because the lab comes to the patient. Furthermore, care workers instead of lab personnel can handle it: during the last years we have witnessed a steady increase in available tests and methods. Back in the lab, we find high sophisticated analytical procedures: MALDI-TOF, a sub-discipline of mass spectrometry, allows faster identification of bacteria and fungi than classical biochemical tests and, particularly important in times of MRSA, faster reaction of health professionals and earlier therapy onset for the patient.

Full automation finally handles all steps from sample registration, pre-analytics such as centrifugation, de-capping, aliquots and analytics, to post-analytical procedures like re-capping and storing without manual interaction of the lab personnel. However, an analytical capacity of 8,400 tests per hour is exaggerated if your lab faces only 50 serum samples a day – but for this scenario as well you will find suitable solutions in this book: the industry provides analyser systems where the smaller ones utilize the reagent platform of their big brothers. This opens the door for analytical networks of small and big hospitals and private laboratories alike.

Enjoy reading and browsing

**Daniela Zimmermann**

**Markus Neumann**



**mindray**  
healthcare within reach

**SHENZHEN MINDRAY  
BIO-MEDICAL ELECTRONICS CO., LTD.**  
MINDRAY is listed on the NYSE under  
the symbol "MR"  
Address: Mindray Building, Keji 12th  
Road South, High-tech Industrial Park,  
Nanshan, Shenzhen 518057,  
P. R. China.  
Email: [intl-market@mindray.com](mailto:intl-market@mindray.com)  
Tel: +86 755 8188 8998  
Fax: +86 755 26582680  
[www.mindray.com](http://www.mindray.com)







# New laboratory challenges require new thinking



**Together we can shape the future of the lab. With our strategic insight and innovation, we provide the solutions you need to meet the challenges your lab faces.**

We share your commitment to patient care and to advancing and optimizing the lab. With a long history of invention and a culture of innovation, we are solely focused on helping you move your lab forward.



» MOVE YOUR LAB FORWARD [beckmancoulter.com](http://beckmancoulter.com)



# Pushing boundaries through innovation

As the world leader in in vitro diagnostics, Roche Diagnostics offers the industry's broadest range of tests, and together with its pioneering technologies, Roche's solutions not only give an accurate diagnosis, they can detect risk of disease, predict how disease may progress, and enable the appropriate treatment decision to be made at the first opportunity.

Roche Diagnostics serves customers spanning the entire healthcare spectrum – from research institutions, hospitals and commercial laboratories to physicians and patients. Roche provides fast and reliable results needed for life-changing decisions thus strengthening successful partnerships with laboratories.

By constantly pushing the boundaries through innovation, Roche strives to continue to be the industry leader and full provider of novel clinically differentiated diagnostic solutions, serving unmet medical needs.

## **Advanced automation and modular solutions meet the evolving needs of today's laboratories**

In healthcare today the emphasis is often on both quality and cost-efficiency. Roche's automated pre- and post-analytical solutions are integral to providing complete flexibility and process optimization. The company offers a full array of stand-alone and networked solutions to meet all of the laboratories'

needs. From laboratory layout to full implementation of systems and services, Roche's customers get everything from a single source. An integrated solution combining IVD and IT reduces risk and complexity for their laboratory. They enable them to use their resources more effectively, while monitoring laboratory performance and increasing quality and confidence.

## **We are active in all major diagnostic segments:**

### **Clinical Chemistry & Immunoassays**

Roche's Serum Work Area fully automated modular platforms and IT solutions offer laboratories seamless clinical-chemistry and immunochemistry testing, providing fast and reliable results for clinical decision-making.

### **Hematology**

Providing fast, accurate results, helping healthcare providers identify and monitor infections, leukemia, chemotherapy and anemic conditions.

### **Urinalysis**

Building on 50 years of experience in urine analysis, Roche offers a range of urine testing products, from single-use strips to semi- and fully automated systems, including digital urinary microscopy.

### **Molecular Diagnostics**

Providing advanced solutions in Virology, Women's Health, Oncology, Microbiology and Genomics for commercial and hospital labs, as well as screening products for blood banks.

### **Tissue Diagnostics**

Improving the lives of all patients afflicted with cancer by providing innovations in tissue-based cancer diagnostics that increase testing efficiency and improve medical value.

### **Point-of-Care Diagnostics**

Portable or bed-side instruments and IT solutions delivering quick, accurate and reliable results for critical- and primary care clinicians and for patient self-testing.

# Automation & Sample Processing

Pre-Analytics  
Post-Analytics  
Automation

**mindray**

**Roche**

 **SARSTEDT**

 **BECKMAN  
COULTER.**



## PRE-ANALYTICS

### Roche Diagnostics – cobas p 312



**Dimensions:** 1,650 x 900 x 1,100 mm (h x w x d)  
**Weight:** 310 kg  
**Sample throughput:** 450/h  
**Power supply:** 230 V/50 Hz, 115 V/60 Hz

- Highlights:**
- Efficiency on one square meter (sample registration, decapping, sorting of all common tube types and carriers, recursive workflow, archiving)
  - Bi-directional host interface for data exchange

### Roche Diagnostics – cobas p 612



**Dimensions:** 2,000 x 1,650 x 1,650 mm (h x w x d) (with touch screen)  
**Weight:** 781 kg (including centrifuge)  
**Sample throughput:** > 380 tubes at 5 min spin time  
**Power supply:** 230/115 V, 60 - 80 Hz

- Highlights:**
- Registration of primary tubes by barcode scanning
  - Detection of tube type
  - Decapping of primary tubes
  - Creation of secondary (=aliquot) tubes
  - Bi-directional host interface for data exchange

### SARSTEDT – Bulk Loader BL 1200 ID



**Sample throughput:** up to 1,200 tubes

- 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 ID - Bulk to Rack
- BL 2000 - 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
  - Enables tube identification by barcode reader and colour sensor
  - Can be customised to sort by tube type, material (colour) or test request
  - Closes tubes with archiving caps
  - Retrofitting of decapping or recapping module is possible
  - Recapping with screw caps for SARSTEDT tubes with 13 or 15 mm diameter

## 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 avoided

#### 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

## 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

## POST-ANALYTICS

### Roche Diagnostics – cobas p 701



**Dimensions:** 2,310 x 4,340 x 1,700 mm (h x w x d)  
**Weight:** 2,300 kg  
**Sample throughput:** 400 tubes for storage  
**Power consumption:** < 3,000 W

### Highlights:

- Automated sample loading via MODULAR PRE-ANALYTICS connection
- Total capacity of 27,300 tubes
- Add-on tests can be ordered via LIS
- A retrieved tube is provided in less than 5 minutes

## AUTOMATION

### 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 (1250/2550)  
**Dimensions:** 1625 x 2560 x 1115 mm (without recapper)  
 1625 x 2560 x 1415 mm (with recapper)

### 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.



# Automated Urinalysis Improves Lab Efficiency and Productivity

The latest addition of the Iris urinalysis portfolio, available from Beckman Coulter Diagnostics, now offers complete and automated, urinalysis testing solutions. The system's advanced digital flow morphology technology is designed specifically for urine microscopy and the evaluation of particles – enabling the lab to have the ability to deliver consistently fast and accurate results with minimal need for manual review.

The patented flow-imaging microscopy uses a high-definition digital camera to individually capture images of each particle in a sample. The particle is automatically classified by the Auto-Particle Recognition (APR) software for on-screen verification. Through isolation, identification and characterisation of particles all viewable on the system's screen, the need for manual microscopic examination is virtually eliminated.





By automating the delivery of accurate results with less subjective, manual analysis, Iris

- » increases overall workflow efficiency
- » minimises manual review and repeat testing
- » reduces unnecessary urine cultures
- » frees up staff resources
- » increases clinical confidence
- » lowers lab costs
- » improves quality with standardisation and
- » provides complete sample status through multiple parameters.

Manual microscopy is virtually eliminated with:

- » On-screen verification of digital images
- » Streamlined workflow with auto release capabilities to the LIS
- » Dramatically improved CVs and reduced errors
- » Easy to use with increased walk-away time.

### iRICELL System

This fully-automated chemistry and microscopy solution, offers a holistic solution to urine testing. The Iris iRICELL complete urinalysis workcell integrates urine chemistry and microscopy into a fully automated walk-away solution that's easy to use and maintain. This increases both efficiency and productivity, enabling scientists to manage a variety of tasks, at the same time. The integrated workcell combines the iQ200 Series automated microscopy system with the iChemVELOCITY automated urine chemistry system.



### The iQ200 Series

The iQ200 Series delivers clear, clinically relevant urine particle images that are auto-classified for more objective and consistent results. This automated microscopy system is designed for all volume workloads, delivering a shorter turnaround time and standardising results. The iQ200 Series are available either as a stand-alone system or connected to an iChemVELOCITY urine chemistry analyser to form an automated iRICELL workcell. Labs of all sizes benefit from automating urinalysis in this way with a specific solution tailored to the lab's workload.

The iQ200SPRINT is one of the fastest automated systems on the market, meeting high-volume productivity and workload requirements. It can handle 101 microscopic samples an hour.

The iQ200ELITE manages medium- to high-volume workload running 70 microscopic samples an hour; with the iQ200SELECT more suitable for low-volume workloads handling 40 microscopic samples an hour.

### Iris Urine Chemistry Systems

Beckman Coulter offers a range of chemistry solutions, from easy-to-read visual strips to a fully automated urine analysis system.



The Iris iChemVELOCITY sets the standard for automated urine chemistry analysis with the development of an ascorbic acid test pad to identify possible ascorbic acid interference with key chemistry assays, ensuring clinically significant and accurate information. The ascorbic acid strip additionally includes a colour compensation pad to assist in reading highly pigmented samples.

iChemVELOCITY delivers a fully automated, high-capacity urine chemistry analysis with excellent low-end sensitivity. It evaluates all standard urine chemistry parameters, including glucose, protein, bilirubin, urobilinogen, pH, specific gravity, blood, ketones, nitrite and leukocyte esterase.

The urine chemistry system offers a high throughput of up to 210 samples per hour, carrying 300 strip loads with a continuous strip loading capability. Records of up to 10,000 patients can be stored on board. Its ease of use maximizes lab performance and productivity.

The iChemVELOCITY is available either as a stand-alone system or combined with the iQ200 Series to form the Iris iRICELL, a fully-integrated urine chemistry and microscopy workcell.

### iChemSTRIPS:

These consolidated urine chemistry strips:

- » Double as a visual read urine chemistry strip
- » Provide excellent discrimination between cut-off levels for each chemistry concentration
- » Deliver the same ascorbic acid inference management and test quality results as the iChemVELOCITY urine chemistry system.

### iChem100:

iChem100 is available as a stand-alone urine chemistry system. However, iChem100 in combination with iChemSTRIPS offers a complete backup solution for the iChemVELOCITY.

Europe's urinalysis labs need both advanced technology and genuinely innovative strategies. Beckman Coulter's Iris solutions can help move labs forward with innovative technology that advances urinalysis and body fluid testing. The systems deliver fast and accurate patient results, with low manual review rates and standardised, automated testing that streamlines workflow, makes better use of skilled staff and helps improve overall lab efficiency.

## AUTOMATION

### Beckman Coulter – Power Express

<b>Dynamic inlet:</b>	1200 tubes/h
<b>Centrifuges:</b>	300 tubes/h (1), 600 tubes/h (2), 900 tubes/h (3), 1200/h (4)
<b>Decapper:</b>	1200 tubes/h
<b>Aliquoter (1:1):</b>	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.

### Mindray – CAL-8000 Cellular Analysis Modular System



- Highlights:**
- Smarter workstation, simpler workflow: Fully automatic flow line system
  - Flexibly consist of up to 4 units of BC-6800 Hematology Analyzers & 2 units of SC-120 Auto Slide Makers & Stainers
  - Sample loading up to 200 primary tubes at one time
  - Total throughput up to: 500 tests/hour, 240 slides/hour
  - One touch screen & one powerful operation software for whole system
  - One button "START" for whole running system
  - Specific STAT channel for priority analysis

### Roche Diagnostics – cobas 8100 automated workflow series



- Highlights:**
- Fully automated lab solution designed for flexibility and efficiency
  - Innovative 3D intelligent tube transportation ensures fast and predictable TAT
  - Modularity and scalability enables easy on-site growing of the system with the growing performance needs of our customers
  - Sample quality check for early error detection
  - Workflow your way: aliquot, primary sample or both
  - Multi-discipline analyzer connectivity
  - Intelligent tube storage for ensuring fast access as soon as the tube is needed



# Chemistry & Immunochemistry

Clinical Chemistry  
Immunochemistry  
Integrated Systems  
Mass Spectrometry  
Electrophoresis/  
Chromatography  
Urin Screening  
Blood Gas  
Blood Glucose  
For Research Only





## CLINICAL CHEMISTRY

### Beckman Coulter – AU5800 Series



**Dimensions:** 1260 x 2600 x 1580 mm (h x w x d)  
**Weight:** 1070 kg  
**Sample throughput:** 2000 - 9800/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.

### EKF Diagnostics – β-HB



**Highlights:**

- Detects ketones in patients with suspected diabetic ketoacidosis
- Diagnose & monitor disease status or severity of:
- Alcoholism
- Glycogen storage disease
- High fat/low carb diets
- Pregnancy
- Alkalosis
- Ingestion of isopropyl alcohol
- Salicylate poisoning

### Mindray – BS-480 Clinical Chemistry Analyzer



**Highlights:**

- Discrete, random access, fully automated
- Constant throughput with 400 photometric tests per hour, up to 240 tests per hour for 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 (vertical & horizontal)
- Reversed grating system with 12 wavelengths (340~800nm)
- Pre-dilution and post-dilution for sample
- Built-in bar code scanner
- Bi-directional LIS interface

### Nova Biomedical – Nova 16 Electrolyte/Chemistry Analyzer



**Dimensions:** 521 x 488 x 526 mm (h x w x d)  
**Weight:** 41 kg  
**Sample throughput:** 475 tests/h  
**Assays:** Na<sup>+</sup>, K<sup>+</sup>, Cl<sup>-</sup>, TCO<sub>2</sub>, BUN, Glucose, Creatinine, Hct

**Highlights:**

- Nova Electrolyte/Chemistry Analyzers provide a whole blood analysis for stat testing; serum and plasma samples for routine testing; CSF and dialysate samples for specialty testing; and urine samples without pre-dilution, recalibration, or reprogramming.

## Randox – RX daytona+



- Sample throughput:** 270 photometric tests/h,  
450 tests/h with ISE
- Dimensions:** 625 x 670 x 870 mm (h x w x d)
- Weight:** 120 kg
- Highlights:**
- Fully automated, random access chemistry analyser with STAT sampling capabilities
  - Versatile reagent carousel with 50 cooled positions & universal sample carousel with 40 positions
  - Intuitive Windowsfi based user friendly software
  - Storage of up to 30,000 patient reports with search facility
  - Liquid level, clot & crash detection
  - Barcode readers for both sample and reagent identification

## Randox – RX imola



- Sample throughput:** 400 photometric tests/h,  
560 tests/h with ISE
- Dimensions:** 690 x 582 x 970 mm (h x w x d)
- Weight:** 150 kg
- Highlights:**
- Fully automated, random access chemistry analyser with STAT sampling capabilities
  - Versatile reagent carousel with 60 cooled positions & universal sample carousel with 72 positions in addition to 20 control/calibrator positions
  - Intuitive Windowsfi based user friendly software
  - 90 permanent Pyrexfi cuvettes with cuvette check function ensuring on clean and viable reaction vessels are reused
  - Liquid level sensor, crash, bubble and clot detection
  - Up to 10 user defined multipoint rules as with 6 different calibration options available to ensure the most accurate results

## Randox – Acusera Liquid Chemistry Premium Plus Control



- Highlights:**
- Combines 100 analytes including proteins, lipids, cardiac markers and routine chemistry tests
  - Liquid for ease of use
  - Third party control offering unbiased assessment across multiple platforms
  - Instrument specific target values available

## Randox – Adiponectin



- Highlights:**
- Randox Adiponectin can be used in the assessment of Type 2 Diabetes risk. As an automated immunoturbidimetric assay, Randox Adiponectin offers a convenient method for adiponectin measurement, suitable for use on various clinical chemistry analysers.



## CLINICAL CHEMISTRY

### Randox – TxBCardio



- Highlights:**
- Randox TxBCardio is an automated latex-enhanced immunoturbidimetric assay for urinary evaluation of aspirin (ASA) response. Randox TxBCardio measures 11dhTxB<sub>2</sub> ensuring accurate results and is suitable for use on numerous clinical chemistry analysers.

### Snibe – BC 1200 Biochemistry Analyzer



**Sample throughput:** 1200 tests/h  
**Dimensions:** 1220 x 800 x 1150 mm (h x w x d)

- Highlights:**
- Constant 1200 tests/hour (biochemistry 600 tests/hour, standard configuration ISE 600 tests/hour)
  - 115 sample positions, continuous loading, polytype primary tube & microcontainer cup available
  - 2 trays, 90 reagent positions, refrigerated with independent power switch, continuous loading
  - Reaction cuvette: 120, optical diameter is 6 mm

### Tokyo Boeki Machinery – BIOLIS24i Premium



**Sample throughput:** 240 tests/h without ISE,  
400 tests/hour with ISE  
**Power consumption:** 600 W  
**Dimensions:** 520 x 800 x 670 mm (h x w x d)  
**Weight:** 95 kg

- Highlights:**
- An open system, random access chemistry analyzer
  - Original "Air pressure mixing system" avoids carry-over
  - More than 5,500 units are sold in 73 countries
  - Water consumption is only 3.5 L /hour at the maximum
  - Individual probes are used for R1 and R2

### Tokyo Boeki Machinery – BIOLIS50i Superior



**Sample throughput:** 480 tests/h without ISE,  
580 tests/h with ISE  
**Power consumption:** 1200 W  
**Dimensions:** 1145 x 1050 x 750 mm (h x w x d)  
**Weight:** 300 kg

- Highlights:**
- An open system, random access chemistry analyzer
  - Hemolysis of whole blood sample for HbA1c is available automatically
  - Clot detector for the sample enhances the accuracy of the test results
  - Less water and power consumption (13L/hour, 1.2KVA)



# NMR spectroscopy – a powerful tool in modern diagnostics



numares employee with NMR samples for routine diagnostic testing

Sabine Norkauer

NMR (nuclear magnetic resonance) spectroscopy is a modern analytical method which is suitable for the analysis of various body fluids (e.g. serum or urine), supporting the quantitative detection of many classes of metabolites (e.g. sugars or amino acids). In addition to metabolite quantification, the method is capable of differentiated lipoprotein subclass measurements. Lipoprotein particles and their subclass distribution are widely acknowledged as emerging risk factors for cardiovascular diseases (CVD)<sup>1,2</sup>. Advanced, NMR-based lipoprotein profiling facilitates the identification of patients at increased risk for CVD that might have remained undetected by conventional lipid measurements such as total or LDL (low density lipoprotein) cholesterol. This permits effective prevention and timely initiation of treatment. The NMR technique can be well standardized and automated, allowing for high reproducibility and good sample throughput compared to lipoprotein fractionation by ultracentrifugation or other more laborious and time-consuming methods. It is thus ideally suited for routine diagnostics as well as for use in clinical studies. Applications in clinical research include the evaluation of lipoprotein subclasses in large-cohort epidemiological studies or clinical trials assessing the safety and efficacy of novel drugs.

Because all evaluated parameters are determined in one measurement, this method is especially suitable for metabolomics approaches. Metabolomics is based on the simultaneous determination of numerous metabolic products (metabolites) in body fluids. This "snapshot of the metabolome" reflects the functional state of the organism which is subject to normal physiological variation in response to the environment, diet and exercise, but may also reflect pathological processes.

In contrast to classical biomarker approaches, which strive to identify individual molecules that are suitable as diagnostic parameters, the metabolomics approach assumes that disease states are reflected in metabolic patterns, also called metabolic signatures or fingerprints. In this context, even subtle changes in metabolite ratios may be relevant.

NMR-based metabolic biomarker signatures can be employed for risk assessment, diagnosis, staging, prognosis, prediction and moni-

toring of diseases as well as the selection and monitoring of therapy to support individualized medicine. Metabolic biomarkers and biomarker signatures have been identified in the fields of cardiovascular and metabolic diseases such as diabetes mellitus, as well as oncology, neurodegenerative diseases and many others<sup>3</sup>.

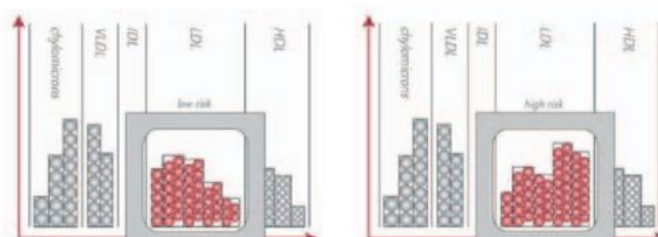


Figure 1: Hypothetical lipoprotein particle distribution of two patients with the same value of LDL cholesterol, but different lipoprotein subclass distribution. The left panel shows a representative lipoprotein profile of a patient with a predominance of larger LDL particles and, thus, a lower risk of cardiovascular disease. The panel on the right shows representative lipoprotein profile of a patient with a higher number of small particles that is associated with increased cardiovascular risk.

Over the course of the past years, NMR spectroscopy has evolved from a mere research method into a tool that can be expected to become a cornerstone of routine diagnostic testing in the future.



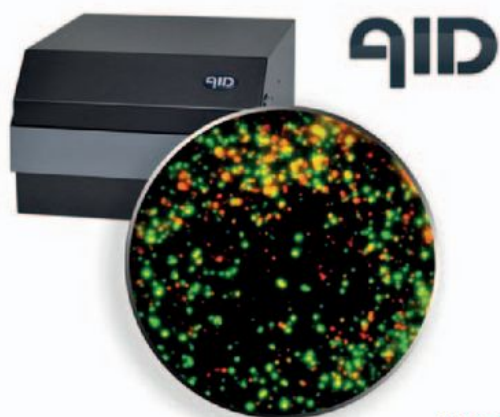
Dr. Sabine Norkauer is product manager at numares AG Regensburg, Germany  
sabine.norkauer@numares.com

1. Davidson M, et al.: Clinical utility of inflammatory markers and advanced lipoprotein testing: advice from an expert panel of lipid specialists (2011). *J Clin Lipidol* 5:338-67.
2. Mikhailidis D., et al.: European panel on low density lipoprotein (LDL) subclasses: a statement on the pathophysiology, atherogenicity and clinical significance of LDL subclasses (2011). *Curr Vasc Pharmacol* 9:533-71.
3. Collino S et al.: Clinical metabolomics paves the way towards future healthcare strategies (2013). *Br J Clin Pharmacol* 75(3):619-29.



## IMMUNOCHEMISTRY

### AID Diagnostika – iSpot Reader



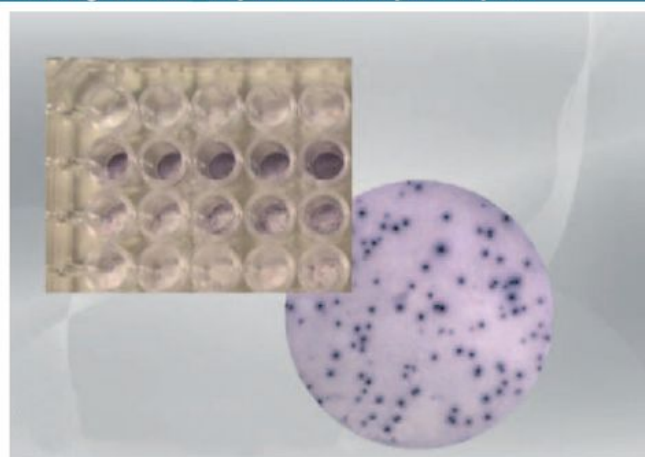
[www.elispot.com](http://www.elispot.com)

**Sample throughput:** <5 minutes per plate, 20 plates per hour  
**Number of channels:** up to 7 fluorescent filter plus LED light  
**Assays:** ELiSpot, 2/3-color FluoroSpot, ViralPlaque Assays  
**No of parallel samples:** 96 well format

**Highlights:**

- Sophisticated new imaging technology to detect single/double and triple-stained spots with 100% accuracy
- Achieves the same sensitivity as with enzymatic based assays
- Software driven filter cube with 8 positions
- Enzymatic ELiSpot assays with any substrat and any type of 96-well plate

### AID Diagnostika – ELiSpot and FluoroSpot Assay Kits



[www.elispot.com](http://www.elispot.com)

**Highlights:**

- T and –B-cell diagnostic assay kits
- Up to 200-fold more sensitive than ELISA
- Close to the in vivo-situation
- Enzymatic and fluorescent detection
- single, double and triple cell analysis
- EBV-Spot, CMV-Spot, Lyme-Spot, Transplantation Spot
- Allows monitoring of TH1/TH2 balance
- Well suited for screening and standardization
- Automated analysis by the AID iSpot Reader
- Easy to perform, results after over night stimulation available

### Beckman Coulter – UniCel Dxl 800 Access Immunoassay System



**Dimensions:** 1700 x 1710 x 970 mm (h x w x 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 immunoassay system allows laboratories to decrease process steps and improve turnaround time – with ease of use.

### Beckman Coulter – Access AccuTnI+3 Troponin I Assay



**Highlights:**

- The Access AccuTnI+3 troponin I assay delivers the precision, clinical sensitivity and clinical specificity necessary to assist physicians with the diagnosis of myocardial infarction (MI). Access AccuTnI+3 troponin I in the core lab gets physicians the critical results they need and can cut triage time in half. The assay can use two serial samples collected within a 3-hour period, rather than waiting for a six-hour period, to provide a more accurate diagnoses. A large multi-center prospective clinical trial on the AccuTnI+3 assay confirmed that the assay provides the clinical performance needed for proper patient management.





### **The RX Series – For results you can trust**

*The RX series of chemistry analysers combines robust hardware and intuitive software with the highest quality reagents. The extensive RX series test menu ensures unrivalled precision and accuracy for results you can trust.*

### **Randox Reagents- Leading the way for quality testing solutions**

*Our extensive range of routine and speciality reagents covers over 100 disease markers and offers outstanding quality, performance, choice and flexibility.*

### **Randox Quality Control - Complete QC solutions**

*Comprising third party controls, interlaboratory data management and the world's largest global EQA scheme the Randox Quality Control package is the most comprehensive available.*

### **Biochip Array Technology**

*Multiplexing Biochip Array Technology enables more reliable, efficient diagnosis. Available panels cover clinical, research and molecular testing.*

# **RANDOX**

**Randox Laboratories Limited** 55 Diamond Road, Crumlin, County Antrim, BT29 4QY  
 T: +44 (0) 28 9442 2413 F: +44 (0) 28 9445 2912 E: [marketing@randox.com](mailto:marketing@randox.com) W: [www.randox.com](http://www.randox.com)

# Precision medicine arrives in the clinical laboratory

**RANDOX**  
MOLECULAR DIAGNOSTICS

The clinical laboratory has become central in the delivery of precision medicine, where the advent of molecular biology has revolutionised the diagnosis and treatment of diseases. Modern DNA and RNA testing offers many advantages over traditional methods for the detection of diseases, where the focus is improving the patient care pathway.

Embracing molecular diagnostics (MDx) has facilitated more streamlined workflows, delivered more accurate diagnoses, accelerated the patient result turnaround time and is enabling the delivery of targeted therapies. These advances have placed an increasing emphasis on diagnostic laboratories and their key role in equipping clinicians to make better and quicker decisions about the right treatment for each patient.

At the forefront of diagnostics, Randox Laboratories have utilised their pioneering multiplex Biochip Array Technology (BAT) within their new range of molecular diagnostic assays, which have been developed specifically to meet the needs of clinical laboratories performing molecular testing.



Randox MDx arrays are a combination of innovative PCR priming technology and biochip array hybridisation, where tethered biochip probes permit detection of and discrimina-

tion between multiple PCR products. The spatially discrete test region (DTRs) facilitate highly multiplexed profiling of the patient sample, allowing 23 tests and two control tests to be carried out on a single biochip.

Utilising this innovative technology, Randox Molecular Diagnostics offers a range of molecular arrays and assay formats, including SNP genotyping, gene expression, pathogen detection and mutation detection, across several key therapy areas, for clinical and research use.

Within infectious disease, the CE-marked STI Multiplex Array rapidly screens for the presence of 10 viral, protozoan and bacterial STIs simultaneously, identifying primary infection whilst also detecting any secondary or asymptomatic co-infections, which can often be missed. The Respiratory Multiplex Array, which is also CE-marked, simultaneously detects 22 respiratory bacterial and viral pathogens from a single sample.

Familial Hypercholesterolemia (FH) Arrays I & II are rapid, accurate diagnostic tests which enable simultaneous detection of 40 FH-causing mutations (20 mutations per



array) within the LDLR, ApoB and PCSK9 genes, commonly implicated in cases of suspected familial hypercholesterolemia.

*KRAS*, *BRAF*, *PIK3CA*\* Array offers targeted mutation profiling of key oncology mutations, predominantly involved in colorectal cancer, but also implicated in other cancer types such as lung and breast cancer. Whilst the *PIK3CA* targets are for research use only, the *KRAS* and *BRAF* assays are CE marked for routine clinical use.

For research use, the Randox Cardiac Risk Prediction Array simultaneously genotypes 19 SNPs for reliable coronary heart disease risk assessment within one day.

With increasing demand being placed on clinical laboratories, Randox Molecular Diagnostics offer unparalleled cost, time and labour saving testing across a range of therapy areas to meet laboratory needs, with many more applications currently in development.



## 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 – 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  $\geq 4.0$  to  $\leq 10.0$  ng/mL, and with digital rectal examination findings that are not suspicious for cancer. Prostatic biopsy is required for diagnosis of cancer.

### 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 DxI 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 DxI immunoassay platforms).

### DRG International – DRG:HYBRiD-XL



#### Dimensions:

586 x 608 x 635 mm (h x w x d)

#### Weight:

52 kg

#### Sample throughput:

40 tests per run

#### Power consumption:

0.2 kW/h

#### Assays:

Immunoassays and Clinical Chemistry

#### Number of parallel samples:

20

#### Highlights:

- This unique technology allows the simultaneous measurement of immunoassays and clinical chemistry parameters in one sample: Free Testosterone, Calprotectin, 17-OH Prog., Renin, Aldosterone, Androstenedione, 25-OH Vitamin D, Cystatin C, HbA1c and others.

## IMMUNOCHEMISTRY

### Randox – Acusera Immunoassay Premium Plus Control



- Highlights:**
- Combines 54 analytes including tumour markers, therapeutic drugs, hormones and Vitamin D
  - Third party control offering unbiased performance assessment across multiple platforms
  - 100% human serum
  - Three clinically significant levels available

### Roche Diagnostics – cobas e 411



- Dimensions:** 800 x 1,200 x 730 mm (disk version)/  
800 x 1,700 x 950 mm (rack version)
- Weight:** 180 kg (diskversion)/250 kg (rack version)
- Sample throughput:** up to 88/h
- Assays:** thyroid function, cardiac, fertility/hormones, maternal care, anemia, tumor markers, critical care

- Highlights:**
- Consolidation of 98% or more of the serum work area testing on a single tube
  - Automatic dilution and repeat testing
  - Wide testing ranges
  - Best STAT in class (9 min.)
  - Unique ECL technology

### Snibe – MAGLUMI 600



- Sample throughput:** 180 tests/h
- Dimensions:** 880 x 560 x 500 mm (h x w x d)

- Highlights:**
- On board capability: up to 16 samples
  - Reagent position: 4
  - Refrigerated sample and reagent area
  - Clot detection
  - Liquid level detection for reagent
  - Auto dilution for high concentration
  - 10-inch notebook
  - Bi-communication with LIS via ASTM protocol

### Snibe – Maglumi 800



- Sample throughput:** 180 tests/h
- Dimensions:** 1200 x 720 x 560 mm (h x w x 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



## Snibe – Maglumi 1000



**Sample throughput:** 120 tests/hour  
**Dimensions:** 1350 x 640 x 870 mm (h x w x 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



**Sample throughput:** 180 tests/hour  
**Dimensions:** 1350 x 640 x 870 mm (h x w x 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/hour  
**Dimensions:** 1440 x 760 x 1520 mm (h x w x 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 4000



**Sample throughput:** 280 tests/hour  
**Dimensions:** 1440 x 830 x 1540 mm (h x w x 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

## IMMUNOCHEMISTRY

### Snibe – Maglumi Reagents

**Packaging: 100 Tests/Kit • Calibrator: included • Quality Control: included**

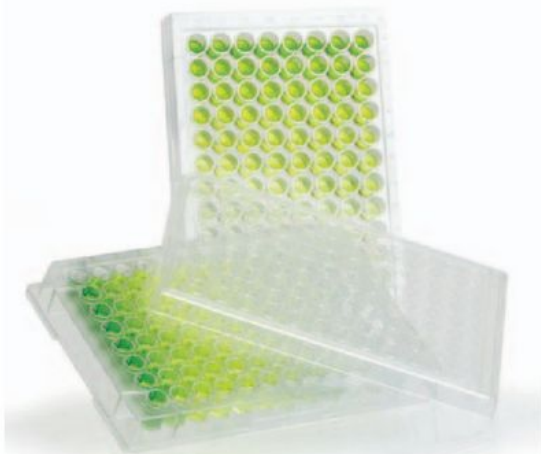
Integrated kit, ready-to use, no pretreatment required. RFID tags store all information about reagents.

Tumor Markers Panel	TORCH & EBV Panel	Thyroid Panel	Infectious Panel	Cardiac Panel	Drug Monitoring & Others Panel	Immuno-globulin & Inflammation Monitoring Panel	Hepatic Fibrosis Panel	Glyco Metabolism & Kidney Function Panel	Bone Metabolism & Anemia Panel	Prenatal Screening & Fertility Panel
Ferritin	Toxo IgG	TSH	HBsAg	CK-MB	Cyclosporine A	IgM	HA	C-Peptide	Intact PTH	cAFP
AFP	Toxo IgM	T4	Anti-HBs	Troponin I		IgA	PIIP N-p	Insulin	Calcitonin	free β-HCG
CEA	Rubella IgG	T3	HBeAg	Myoglobin	Tacrolimus,	IgE	C IV	ICA	Osteocalcin	PAPP-A
Total PSA	Rubella	FT4	Anti-HBe	NT-proBNP	FK 506	IgG	Laminin	IAA	25-OH Vitamin D	FSH
f-PSA	IgM	FT3	Anti-HBc	Aldosterone	Digoxin	CRP	Cholyglycine	Proinsulin	Vitamin B12	LH
CA 125	CMV IgG	TG	Anti-HCV	Angiotensin I	GH	PCT		GAD 65	Ferritin	HCG/β-HCG
CA 15-3	CMV IgM	TGA	HIV*	Angiotensin II	IGF-I			IA-2	Ferritin	PRL
CA 19-9	HSV-1/2 IgG	TRAb	Syphilis*	D-Dimer	Cortisol			β <sub>2</sub> -MG	FA	Estradiol
PAP	HSV-2 IgG	TMA	Chagas*	Renin	ACTH			Albumin		free Estriol
CA 50	HSV-1/2 IgM	Anti-TPO	HTLV*	(PRC)*						Progesterone
CYFRA 21-1	EBV EA IgG	Rev T3	Anti-HAV*	LP-PLA2*						Testosterone
CA 242	EBV EA IgA		HAV IgM*							Free Testosterone
CA 72-4	EBV VCA IgG									DHEA-S
NSE	EBV VCA IgM									
S-100	EBV VCA IgA									
Pepsinogen I	EBV NA IgG									
Pepsinogen II										
SCCA										



\* Under Development

### 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.

### Tokyo Boeki Machinery – Allergy-Specific IgE Analyzer



**Sample throughput:** 90 tests/39minutes  
**Power consumption:** 900 W  
**Dimensions:** 610 x 850 x 665 mm (h x w x d)  
**Weight:** 100 kg

**Highlights:**

- Speedy: First result available after 12 minutes from analysis start
- Easy to use: Automatic supply and disposal of reaction materials
- Flexible: Continuous sample loading, 60 allergens stored on board



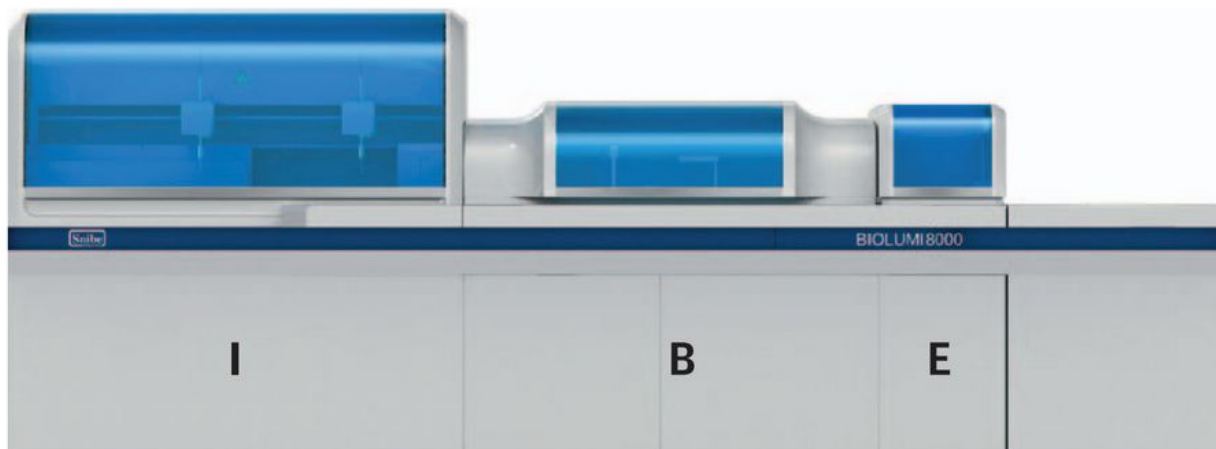
## INTEGRATED SYSTEMS

### Mindray – SAL-8000 Modular System



- Highlights:**
- Flexible scalability connection:  
Consist of clinical chemistry analyzer BS-800M & BS-2000M, chemiluminescence immunoassay analyzer CL-2000i
  - Large capacity:  
Rack system with Sample Delivery Module (SDM), up to 300 onboard samples with 30 racks, continuous loading support
  - 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.

### Snibe – Biolumi 8000



**Highlights:**

**Sample processing module**

- Loading 320 samples at one time
- Recognize the barcode of primary tube
- Continuous loading and unloading samples during operation
- Specific STAT channel

**Biochemistry module (B)**

- 1200 tests/hour
- Continuous loading reagent during operation
- Clot detection, liquid level detection
- Wavelength range 340 nm-800 nm, detect 16 different wavelengths simultaneously

**Electrolyte module (E)**

- 1800 tests/hour
- Continuous loading reagent during operation
- Clot detection, liquid level detection

**Immunoassay module (I)**

- Magnetic separation, flash CLIA technology
- more than 100 parameters (tumor marker, fertility, hepatic fibrosis, inflammation monitoring, cardiac markers etc.)
- 25 reagents on board
- 280 tests/hour
- Clot detection, liquid level detection

## INTEGRATED SYSTEMS

### Roche Diagnostics – cobas 6000 analyzer series



- Highlights:**
- A serum work area solution designed for 250,000 to 2.5 million tests/year or 250 to 2,000 samples per day with multiple configurations
  - Up to 340 immunoassay tests per hour and up to 2,000 clinical chemistry tests per hour depending on configurations
  - Combines STAT and routine testing without disruption
  - System consists of two core analytical units which can be configured in seven different ways to meet the needs of every laboratory
  - State-of-the-art immunoassay testing using ElectroChemiluminescence (ECL) technology
  - Sample and result integrity deliver high quality results (e.g. test-specific serum indices, disposable immunoassay tips and cups, and clot detection)
  - Wide range of complete pre and post-analytical solutions from small Task Target Automated to Total Lab Automation

### Roche Diagnostics – cobas 8000 modular analyzer



**Highlights:** The cobas 8000 modular analyzer series effectively meets laboratory workload and manages peak demand by delivering an extremely high throughput of tests per hour.

- Delivers a max throughput of up to 9800 tests/hour
- 9-minute immunoassay STAT applications ensure rapid availability of all patient results
- Radio Frequency Identification (RFID) technology on the cobas c pack large cassettes allow for fast reagent registration
- Innovative Module Sample Buffers allow for true random access to every rack and unrestricted rack flow within the system
- Large onboard sample and reagent capacity, combined with the Auto QC concept, help to maximize your walk-away time
- Connectivity to pre-analytics, including MODULAR PRE-ANALYTICS system, allows for less variability and more predictability in the process, providing confidence in the results
- Consolidates very frequently requested tests with less frequently requested tests
- Largest installed base worldwide, unique modular concept, broadest testing menu available



**UFMS**  
ULTRA FAST MASS SPECTROMETRY



## Detect more. Discover more.

### Introducing the new Shimadzu LCMS-8050 Extraordinary sensitivity in the world's fastest triple quadrupole mass spectrometer

The new Shimadzu LCMS-8050 triple quadrupole mass spectrometer delivers stunning sensitivity and exceptionally high data acquisition speed to give you accurate quantitation for the most demanding applications required by clinical research, environmental, food safety, DMPK and ADMET studies and quantitative proteomics.

Engineered with advanced ultra-fast technologies, the LCMS-8050 creates new opportunities in achieving lower limits of quantitation and, with the world's fastest triple quadrupole delivering 30,000 u/sec scan speeds and a 5 m/sec polarity switching time, help to enhance data quality and accelerate sample throughput – all with industry-leading reliability.

**The new Shimadzu LCMS-8050 Speed and Sensitivity beyond Comparison**

[www.shimadzu.eu](http://www.shimadzu.eu)



# iMScope *TRIO* – a new era in Imaging Mass Spectrometry





This new hybrid system – the world's first – is a combination of an optical microscope which allows the observation of high-resolution morphological images, with mass spectrometer which identifies and visualizes the distribution of specific molecules with a spatial resolution of 5  $\mu\text{m}$ . This advanced imaging builds on the iMScope developed in April 2013 as part of the Development of Systems and Technology for Advanced Measurement and Analysis Program of the Japan Science and Technology Agency (JST).

The accurate and high resolution images from the iMScope *TRIO* will drive research in a broad range of biological and clinical applications including disease-specific markers based on differences in molecular distribution in normal and diseased tissues and pharmaceutical drug distribution, metabolism and toxicology.

#### Imaging Mass Spectrometry identifies what can be seen at a molecular level – iMScope *TRIO* transforms the data from observation to analysis

Optical microscopes cannot determine which molecules are localized in the region of interest. On the other hand, the positional information of molecules is lost in mass spectrometric analysis, where sample extraction and homogenization is needed for sample pre-treatment. Now, the qualitative analysis and localization of molecules and the compositional and morphological observation can be obtained from a single analysis through the microscope.

#### iMScope *TRIO* – superimpose optical and mass microscope images

Imaging mass spectrometry directly detects natural and synthetic molecules in tissue sections and measures mass spectra,

while retaining their positional information associated with the tissue section.

Two-dimensional distributions of specific molecules are then visualized by combining the positional information of each mass spectrum and the signal intensity for specific ions in the mass spectrum (MS imaging). Thus the iMScope *TRIO* represents a hybrid type microscope that combines both an optical microscope and a mass spectrometer.

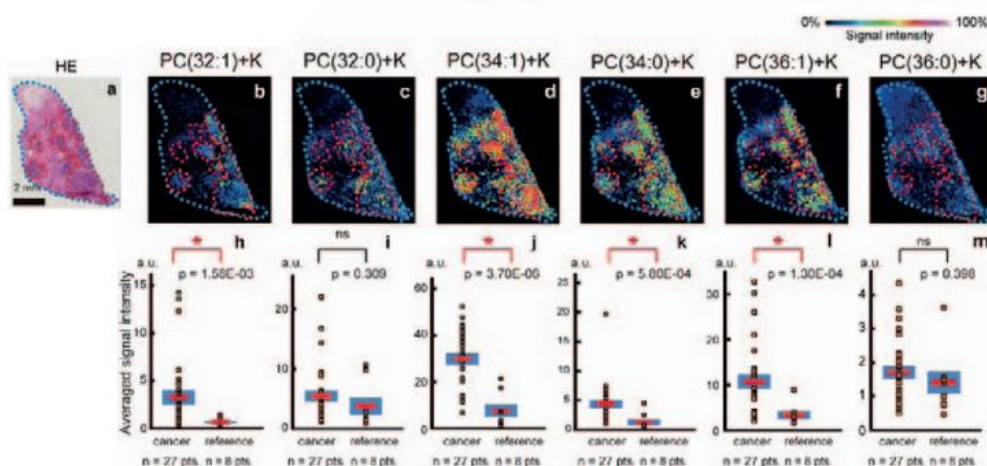
#### Advances in medical research thanks to the new technology

The new hybrid system is particularly useful to identify disease-related biomarkers and rendering two-dimensional distributions of those substances through visualization. In addition biological mechanism analysis and pathological research can be achieved through identifying the location of target molecules (profiling).

The iMScope *TRIO* makes it easy to receive information regarding which molecules are located within the ROI of an organ, e.g. cancerous areas. Until now, biomarker discovery has been carried out by LCMS or other mass spectrometry techniques for each organ.

### Comparative analysis from one single data set

#### Visualization of the region specific distribution of PCs species in breast cancer tissue



The visualization of phospholipids in breast cancer tissues, and the discrimination of the area containing cancer cells and the rest of the sections. Evaluation the expression of *SCD1* protein in cancer cells to consider the relationship between desaturation and lipid composition. Lipid composition is further analyzed with regard to estrogen receptor (*ER*), human epidermal growth factor receptor 2 (*HER2*), and *Ki67* expression.

Citation: Ide Y, Waki M, Hayasaka T, Nishio T, Morita Y, et al. (2013) Human Breast Cancer Tissues Contain Abundant Phosphatidylcholine (36:1) with High Stearoyl-CoA Desaturase-1 Expression. *PLoS ONE* 8(4): e61204. doi:10.1371/journal.pone.0061204

## MASS SPECTROMETRY

### AB SCIEX – 4500MD series



- Highlights:**
- Superior accuracy, precision, and sensitivity, leading to greater confidence in results, compared to traditional laboratory tests such as immunoassays
  - Ability to simultaneously analyze multiple compounds, thus increasing laboratory efficiency
  - Rapid and easy assay development allowing laboratories to quickly adapt to new demands
  - Low running costs, multiple compound analysis and reduced need for re-runs driving cost per test further down
  - Robust performance, minimal maintenance needs and dedicated customer support ensuring high instrument up-time

### Thermo Scientific – Endura MD Mass Spectrometer



- Highlights:**
- Delivers excellent sensitivity for a wide range of compounds and matrices
  - Minimizes signal noise by removing more solvent vapor and blocking neutrals
  - Provides five orders of dynamic range for accurate quantitation of even low-concentration or limited samples
  - For in vitro diagnostic use only
  - Not available in all countries

### Shimadzu – iMScope TRIO



- Highlights:**
- Imaging mass spectrometry is a revolutionary new technology. The instrument is a combination of an optical microscope which allows the observation of high resolution morphological images, with a mass spectrometer which identifies and visualizes the distribution of specific molecules. Superimposing the two images obtained based on these very different principles, has created a significant new research tool, the imaging mass microscope. The accurate and high resolution mass images from the iMScope will drive your research to the next level. At long last, we have entered the age of imaging mass spectrometry

### Shimadzu – LCMS-8030



- Sensitivity:** 1 pg reserpine, S/N>3,000:1 (RMS)  
**Scan speed:** max. 15,000 u/s  
 (0.1 u step:150,000 data points/s)  
**Polarity switching time:** 15 ms  
**MRM transition speed:** max. 555 channels/s  
**No of channels:** MRM (max. 1,000 events x 32 channels)  
**Applicable LC flow rate:** ESI 1 µl/min to 2 ml/min

- Highlights:**
- Triple Quadrupole Mass Spectrometry is the method of choice for definitive identification and reproducible quantification of trace level analytes in complex samples.
  - Shimadzu combined the experience from different fields for building a mass spectrometer that can keep pace with the chromatographic resolving power of our world leading UHPLC systems.
  - The LCMS-8030 couples the power of TQ-MS with unparalleled speed to provide the ideal compliment to both UHPLC and conventional HPLC systems.
  - With high speed MRM transitions, ultra high speed polarity switching and unique UFSweeper technology, the LCMS-8030 is truly a universal detector for liquid chromatography.



## Shimadzu – LCMS-8050



<b>Sensitivity:</b>	1 pg reserpine, S/N > 60,000:1 (RMS)
<b>Scan speed:</b>	max. 30,000 u/s (0.1 u step: 300,000 data points/s)
<b>Polarity switching time:</b>	5 ms
<b>MRM transition speed:</b>	max. 555 channels/s
<b>No of channels:</b>	MRM (max. 1,000 events x 32 channels)
<b>Applicable LC flow rate:</b>	ESI 1 µl/min to 2 ml/min



- Highlights:**
- Triple Quadrupole Mass Spectrometry is the method of choice for definitive identification and reproducible quantification of trace-level analytes in complex samples for a variety of applications including clinical research, forensic toxicology, pharmacokinetics, environmental analysis, and food and beverage testing.
  - Combined with the chromatographic resolving power of our world-leading UHPLC systems, and maintaining Shimadzu's proprietary ultrafast technologies (UF Technologies), which include high-speed MRM transitions, MS/MS acquisition, and ultra-high speed polarity switching, the LCMS-8050 can dramatically improve analytical throughput with ultra-high-speed performance.
  - The newly designed ion source and collision cell, Heated-ESI and UFSweeper III collision cell technology, yield higher sensitivity and expand the potential range of LC/MS/MS applications.

## Shimadzu – LCMS-8040



<b>Sensitivity:</b>	1 pg reserpine, S/N > 10,000:1 (RMS)
<b>Scan speed:</b>	max. 15,000 u/s (0.1 u step: 150,000 data points/s)
<b>Polarity switching time:</b>	15 ms
<b>MRM transition speed:</b>	max. 555 channels/s
<b>No of channels:</b>	MRM (max. 1,000 events x 32 channels)
<b>Applicable LC flow rate:</b>	ESI 1 µl/min to 2 ml/min

- Highlights:**
- Triple Quadrupole Mass Spectrometry is the method of choice for definitive identification and reproducible quantification of trace level analytes in complex samples for a variety of applications such as pharmacokinetics in pharma/CRO, food, environmental, forensic/toxicology and newborn screening.
  - Combined with chromatographic resolving power of our world leading UHPLC systems and maintaining Shimadzu's proprietary ultrafast technologies (UF Technologies) which includes high-speed MRM transitions, MS/MS acquisitions, and ultra-high speed polarity switching, the LCMS-8040 can dramatically improve analytical throughput with ultra-high speed performance.
  - The newly improved ion optical system, UF-Lens and unique UFSweeper II collision cell technology yield higher sensitivity and expand the potential range of LC/MS/MS applications.

## ELECTROPHORESIS & CHROMATOGRAPHY

### Biotec-Fischer – MAESTRO 101



<b>Sample throughput:</b>	10 samples within 75 min. (depending on method)
<b>Power consumption:</b>	150 W
<b>Dimensions:</b>	400 x 560 x 300 mm (h x w x d)
<b>Weight:</b>	12 kg

- Highlights:**
- Automated gel electrophoresis system
  - Methods: serum protein, lipo protein, alc. hemoglobin, urine
  - Low consumable consumption
  - Time saving
  - Small, rugged design
  - Low-maintenance
  - Easy to operate
  - TurboScan densitometry software optional

## ELECTROPHORESIS / CHROMATOGRAPHY

### Shimadzu – i-series



**Max. operating pressure:** 66 MPa  
**Detectors:** UV, MWD, DAD/PDA, Fluorescence, RID  
**Sample capacity:** 336 (1ml vials) or 216 (1.5 ml vials) or 112 (4ml vials) or 4 x 384-well MTP or DWP  
**Injection speed:** 14 seconds  
**Dimensions:** 605 x 410 x 500 mm (h x w x d)  
**Weight:** 63 kg  
**Applicable LC flow rate:** 0.0001-3.0 ml/min (66 MPa); 3.0001-5.0 ml/min (44 MPa); 5.0001-10.0 ml/min (22 MPa)

**Highlights:**

- High speed and outstanding performance, maintainability and efficiency – the new i-series with the compact Prominence-i (HPLC) and Nexera-i (UHPLC) versions meets the needs of large as well as small laboratories. The letter i stands for innovation, intelligence and intuitive operation, all of which are combined in the i-series concept.

### Shimadzu – Nexera X2



**Max. operating pressure:** 130 MPa  
**Detectors:** UV, MWD, DAD/PDA, Fluorescence, RID, ELSD, CDD, SQ MS, TQ MS, IT-TOF MS  
**Sample capacity:** 115 (1.5 ml sample vials), optional rack changer with capacity up to 658 (1.5 ml sample vials) or 12 x 384-well MTP or DWP  
**Injection speed:** 14 seconds  
**Flow rate range:** 0.0001-3.0 ml/min (to 130 MPa); 3.0001-5.0 ml/min (to 80 MPa); 5.0001-10.0 ml/min (to 22 MPa)  
**Dimensions:** flexible, standard configuration 630 x 520 x 500 mm (h x w x d)  
**Weight:** flexible, standard configuration 80 kg  
**Power Supply:** AC 110 V, 230 V, 150 VA, 50/60 Hz

**Highlights:**

- The Nexera X2 system is an all-round LC system that supports conventional as well as ultra-high pressure applications. It enables operating pressures up to 130 MPa and virtually no carry over while maintaining reliability and robustness of a conventional LC system for ultra-high performance. Apart from standard configurations the Nexera X2 is a modular UHPLC system with the advantage of high flexibility and extended functionality to ensure the best possible performance. Sample pre-treatment and overlapping injection functionality of the Nexera X2 autosampler add to the versatility of the system.

### Thermo Scientific – Prelude MD HPLC



**Highlights:**

- Dual HPLC channels are intelligently optimized to run identical or different tests in parallel, maximizing utilization of the mass spectrometer and improving turnaround time and productivity
- TurboFlow technology removes matrix interferences and captures analytes of interest, minimizing ion suppression and improving subsequent mass spectrometry results
- For in vitro diagnostic use only
- Not available in all countries

## 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.



## Roche Diagnostics – cobas u 411



**Dimensions:** 360 x 425 x 340 mm  
(h x w x d) (with opened screen)

**Weight:** 12 kg

**Sample throughput:** 600 strips/h

**Assays:** pH, leukocytes, nitrite, protein, glucose, ketones, urobilinogen, bilirubin, blood, specific gravity

- Highlights:**
- Ideal work area solution for medium volume testing sites (approximately 80 samples per day)
  - Consolidated work and dataflow for strip analysis and manual microscopy
  - Supported by an optional barcode reader and a sediment terminal
  - User-friendly software for customized operation and reporting
  - Proven high quality of Combur10 Test M strips

## Roche Diagnostics – cobas 6500 urine analyzer series



**Dimensions:** 644 x 2,178 x 532 mm (with buffers) (h x w x d)

**Weight:** 169.3 kg

**Sample throughput:** up to 240/h (strip analysis only)/  
up to 118/h (microscopy analysis only)

**Assays:** complete set of urine strips (12 parameter) and microscopy (11 parameter)

- Highlights:**
- cobas 6500 urine analyzer series provides a fully automated solution on a modular platform for laboratories processing 100 - 1000 urine samples per day. The cobas u 601 analyzer performs fully automated urine strip testing and cobas u 701 analyzer performs fully automated sediment microscopy with the benefit of real images.

## Axon Lab AG

Everything we do is based on a sense of conviction.

We are a proactive and reliable partner of hospitals, medical practices, private laboratories, research and industry, as well as of private individuals.



## URINE SCREENING

### 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 urine collection, transport and analysis.
- V-Monovette Urine: For enclosed urine transfer. Optimal hygienic and convenient handling.

## BLOOD GAS / ELECTROLYTES / OXIMETRY

### Nova Biomedical – Stat Profile pHox Ultra



**Dimensions:**

457 x 559 x 432 mm (h x w x d)

**Sample throughput:**

23 samples/h

**Assays:**

pH, pCO<sub>2</sub>, pO<sub>2</sub>, SO<sub>2</sub>%, Na<sup>+</sup>, K<sup>+</sup>, Ca<sup>++</sup>, Mg<sup>++</sup>, Cl<sup>-</sup>, Glucose, BUN/Urea, Creatinine, Lactate, Hct, Hb, O<sub>2</sub>Hb, HHb, COHb, MetHb, tBil

**Highlights:**

- No other blood gas analyzer can match the clinical value of pHox Ultra. It provides up to 20 critical care tests from one small, 210 microliter sample in only 2 minutes. Other partial test panels are available in less than one minute.

### Nova Biomedical – Stat Profile Prime CCS Comprehensive



**Dimensions:**

391 x 305 x 366 mm (h x w x d)

**Weight:**

8,2 kg

**Sample throughput:**

45 samples/h

**Assays:**

pH, pCO<sub>2</sub>, pO<sub>2</sub>, Hct, Na<sup>+</sup>, K<sup>+</sup>, Cl<sup>-</sup>, Ca<sup>++</sup>, Glu, Lac

Stat Profile Prime makes critical care testing easy and affordable.

**Highlights:**

- 10-test critical care menu
- Results in 60 seconds
- Fast throughput
- ZERØ maintenance
- 24-hour readiness
- True liquid QC
- Low cost

### SARSTEDT – Blood gas capillary tubes



**Highlights:**

- Blood gas collection systems for arterial, venous and capillary sampling with the smallest sample volumes and Ca<sup>2+</sup> balanced heparin.
- The liquid Ca<sup>2+</sup> balanced heparin 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.



## BLOOD GLUCOSE

### KABE LABORTECHNIK – Glucose analyser GA 3



**Sample throughput:** 120 analyses/h  
**Dimensions:** 385 x 220 x 520 mm (h x w x d)  
**Weight:** 11 kg  
**Assays:** whole blood (haemolysed); 20 µl

- Highlights:**
- Glucose and lactate measurement
  - Intuitive operation
  - Integrated printer
  - Direct connection to lab EDP
  - 44 sample positions
  - Economical sample preparation due to exchangeable racks
  - Sampling from closed vessels
  - Quick exchange of consumables
  - Low maintenance

### Nova Biomedical – StatStrip Hospital Glucose Monitoring System



**Dimensions:** 147 x 79 x 30 mm (h x w x d)  
**Weight:** 0,22 kg  
**Assays:** Glucose

- Highlights:**
- Validated in over 110 published studies throughout the world, lab-accurate StatStrip Glucose corrects for hematocrit, Maltose, and other interferences that can cause erroneous results on other glucose meters. StatStrip – no known interferences.

## FOR RESEARCH ONLY

### Eppendorf – BioSpectrometer



**Dimensions:** 150 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:**
- UV/Vis spectral range 200 nm to 830 nm
  - Freely selectable wavelengths across the entire UV/Vis spectral range (increment: 1 nm)
  - Temperature controlled cuvette shaft in the BioSpectrometer kinetic (20 °C to 42 °C in 0.1 °C increments)
  - Fluorescence intensity measurements across a range of 0.5 nM to 2,000 nM fluorescein with the BioSpectrometer fluorescence

### Eppendorf – BioPhotometer D30



**Dimensions:** 150 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:**
- Fixed wavelengths at 230 nm, 260 nm, 280 nm, 320 nm, 340 nm, 405 nm, 490 nm, 562 nm, 595 nm and 600 nm
  - Display of purity scan for specific applications
  - Guided software process to minimize errors
  - Xenon flash lamp with very long life time

# Hematology & Pathology

**mindray**

**Roche**

 **BECKMAN  
COULTER.**

**OLYMPUS**  
Your Vision, Our Future

 **SARSTEDT**

 **TOKYO BOEKI MACHINERY LTD.**

Blood Cell Counter  
Coagulation  
Histology Equipment  
Pathology  
Other



## BLOOD CELL COUNTER

### Beckman Coulter – UniCel DxH Connected Workcell Solution



**Dimensions:** 1905 x 3225 x 787 mm (h x w x d)  
**Weight:** 1016.6 kg  
**Sample throughput:** 300 samples and 140 slides/h

- Highlights:**
- With the new UniCel DxH Series of connected hematology workcells, your lab can streamline workflow through smart workload balancing advanced analytics – providing relevant and thoughtful workflow efficiency while delivering accurate patient results. The UniCel DxH eliminates the need for pre-sort and offers workflow enhancements with bi-directional transport.

### Mindray – BC-5150 Auto Hematology Analyzer



**Dimensions:** 410 x 320 x 400 mm (h x w x d)  
**Weight:** 24 kg  
**Sample throughput:** 60/h  
**Assays:** 25 basic parameters + 4 research parameters, 3 histograms for WBC, RBC and PLT + 3 scattergrams for WBC differential

- Highlights:**
- Impedance method for RBC and PLT counting
  - Cyanide free reagent for hemoglobin test
  - Flow Cytometry (FCM) + Tri-angle laser scatter + chemical dye method for WBC 5-part differential analysis and WBC counting
  - Sample volumes are prediluted modes 20 µl, whole blood mode 15 µl, capillary whole blood mode 15 µl
  - Data Storage if possible up to 40,000 results including numeric and graphical information

 JAPAN QUALITY

## Automated Clinical Analyzer BIOLIS SERIES

### BIOLIS 50i Superior

480 tests/hour,  
580 tests/hour including ISE

- Direct measurement for HbA1c
- Dedicated sample probe for ISE
- Built-in clot detector



### BIOLIS 24i Premium

240 tests/hour,  
400 tests/hour including ISE

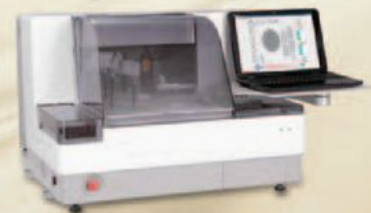
- Sold in 72 countries
- Air pressure mixing
- Friendly user interface



First result available within 12 minutes

### Allergy-Specific IgE Analyzer

- Continuous sample loading
- 60 allergens stored on board



Virtual Slide System

### fino

- Simple operation without pre-setting
- Live mode
- Scan mode



PRESENTED BY  
**TOKYO BOEKI MACHINERY LTD.**

Headquarters 2-13-8, Hatchobori, Chuo-ku, Tokyo 104-8510, Japan  
 Tel: +81-3-3555-7353 Fax: +81-3-3555-7367  
 URL <http://www.tokyo-boeki-machinery.jp/>  
 e-mail: [info-medical@tokyo-boeki.co.jp](mailto:info-medical@tokyo-boeki.co.jp)

 **TOKYO BOEKI GROUP**

# Hematology & Pathology

## BLOOD CELL COUNTER

### Mindray – BC-5800 Auto Hematology Analyzer



- Sample throughput:** 90/h  
**No of parallel samples:** 100  
**Assays:** 25 basic parameters + 4 Research parameters (LIC%, LIC#, ALY%, ALY#), 2 Histograms for RBC and PLT, 2 Scatter grams: 4-differential scatter gram, Basophil scatter gram, Cyanide free hemoglobin measurement
- Highlights:**
- Sample volume: Prediluted 40 µL, manual mode (open vial) 120 µL, auto loader/manual mode (closed tube) 180 µL
  - LIS Communication: LAN port supports HL7 and 151D protocol, support uni- or bi-directional LIS

### Mindray – BC-6800 Auto Hematology Analyzer



- Sample throughput:** 125 (CBC+DIFF), 90 (CBC+DIFF+RET), 40/h (body fluid)  
**No of parallel samples:** 100
- Highlights:**
- SF cube cell analysis technology (3D scattergram) for WBC, 5-Part DIFF, NRBC, RET and PLT-Optical
  - Cyanide free hemoglobin measurement
  - Reportable parameters: 37 (whole blood), 7 (body fluid), research parameters: 17 (whole blood), 7 (body fluid)
  - 2 histograms for RBC & PLT; 3 scattergrams (3D) for DIFF, NRBC, RET; 6 scattergrams (2D) for DIFF, BASO, NRBC, RET, RET-EXT, PLT-Optical
  - Data storage capacity: up to 100,000 patient results including all numeric and graphical information

## COAGULATION

### Roche Diagnostics – Multiplate Analyzer



- Dimensions:** 110 x 320 x 450 mm (h x w x d)  
**Weight:** 11 kg  
**Assays:** ASPtest, ADPtest, TRAPtest, COLtest, RISTOtest, Prostaglandin E1 Reagent, GPIIb/IIIa Antagonist Reagent, ASA Reagent
- No of parallel samples:** 5
- Highlights:**
- The Multiplate analyzer is an easy-to-use instrument that standardizes platelet function testing in small quantities of whole blood
  - It has been featured by over 400 Medline-listed articles and has been reported by several groups to be useful in tailoring anti-platelet therapy as well as improving the management of bleeding complications in surgical procedures

### SARSTEDT – S-Monovette Hirudin - Thrombocyte function



- Highlights:**
- This blood collection tube is developed to measure thrombocyte activity on the Multiplate analyser (multiple platelet function analyser). In 2008 Sarstedt AG & Co in cooperation with Dynabyte / Verum Diagnostica (now Roche) was the first manufacturer to produce and launch a blood collection system with Hirudin as anticoagulant agent. During validation the S-Monovette Hirudin was compared to the Hirudin tube of Dynabyte. This was done internally by Sarstedt as well as externally by two independent institutions (Munich University Hospital, Westfalz-Klinikum, Medical Clinic III).



## HISTOLOGY EQUIPMENT

### Mindray – SC-120 Auto Slide Maker & Stainer



**Sample throughput:** up to 120 stained slides per hour  
**Sample volume:** 200 µl (autoloader and on track mode),  
40 µl (micro-sample mode)

- Highlights:**
- Autoloader capacity is up to 50 sample tubes at once with random access
  - Loads up to 10 cassettes at once, each cassettes can hold up to 10 sides
  - Automated slide making and staining by single instrument, automated detection of blood consistency and automated adjustment of blood volume, angle and speed of spreader (or pusher) to optimize quality of smear (or blood film)
  - Wright stain, Wright-Giemsa stain, May-Grunwald-Giemsa stain with the possibility to recycle stains up to 20 times

### Roche Diagnostics – VENTANA BenchMark ULTRA



**Dimensions:** 1,585 x 1,117.6 x 840.7 mm (h x w x d)  
**Weight:** 294.8 kg  
**Power supply:** 100 - 230 V, 4 - 6 A, 50/60 Hz

- Highlights:**
- Fully automated baking, deparaffinization, cell conditioning and staining, including IHC, ISH, SISH, immunofluorescence, multiparameter IHC staining (dual, triple), counter stain and titration
  - STAT requests with no impact to in-process slides
  - 35 reagent positions
  - 1 – 30 slides with independent processing/functionality and temperature control for each position
  - Up to seven different bulk solutions can be changed "on the fly" without process interruption
  - Process up to 90 slides in 8 hours, or 120 slides with an overnight run

## Your Partner in Medicine and Science Worldwide

### Blood Collection & Diagnostic Products



### Laboratory Automation & Sample Preparation



### Laboratory Products & Life Science



### Medical Products & Transfusion



SARSTEDT AG & Co. · Postfach 12 20 · D-51582 Nümbrecht  
Phone (+49) 0 22 93 305-0 · Fax (+49) 0 22 93 305-122  
[www.sarstedt.com](http://www.sarstedt.com) · [info@sarstedt.com](mailto:info@sarstedt.com)

## PATHOLOGY

### Olympus – VS120-L100 Virtual Slide Microscopy

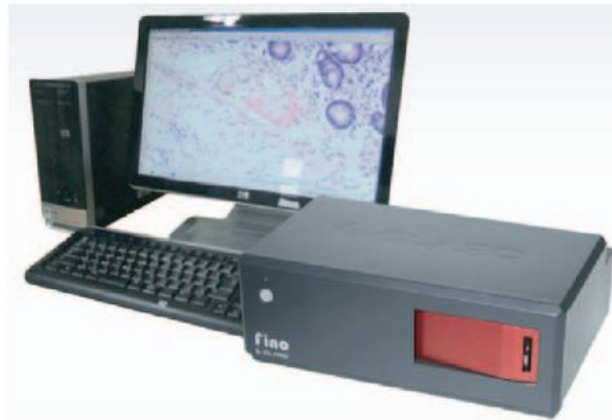


**Dimensions:** 638 x 720 x 587 mm (h x w x d)  
**Weight:** 100 kg  
**Power consumption:** 1030 W

**Highlights:**

- The VS120 slide scanner is engineered for research and pathology environments. Two racks offer users reliable slide handling, fully automated scanning of up to 100 slides. The integrated barcode scanner reads all common 1D and 2D code formats.

### Tokyo Boeki Machinery – FINO Virtual Slide System



**Dimensions:** 175 x 455 x 310 mm (h x w x d)  
**Weight:** 15 kg  
**Power consumption:** 40 W

**Highlights:** Scan Specimens with our Whole Slide Imaging System to generate fully magnified, high-resolution images.

- High-performance model with a low-profile, compact body
- Simple operation without pre-setting
- Live mode and Scan mode available

## OTHER

### Olympus – BX46 - Ergonomic Screening Microscope



**Dimensions:** 548 x 275 x 362 mm (h x w x d)

**Highlights:**

- The BX46 is a microscope designed for ergonomics. The stage is fixed in a very low position for convenient exchange of specimen slides. Ideal user posture is additionally ensured by the three-dimensional adjustability of the observation tube.

### SARSTEDT – S-Monovette ThromboExact



**Highlights:** The blood collection tube S-Monovette Thrombo-Exact 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.



Amplification  
Detection  
Amplification/  
Extraction  
Integrated Systems  
Microarrays  
For Research Only



## AMPLIFICATION

### EKF Diagnostics – PointMan DNA Enrichment Kits



- Highlights:**
- Highly sensitive
  - Enrich mutated sequence from FFPE & liquid biopsy
  - Works with all qPCR platforms
  - Kits available for Mutations:
    - KRAS codons 12/13/61
    - BRAF V600E
    - NRAS codon 12/13/61
    - EGFR T790M, L858R & exon 19 deletions
    - JAK2 V617E
    - ESR1 codons 534-538

### Roche Diagnostics – COBAS AmpliPrep Instrument



- Dimensions:** 950 x 1650 x 950 mm (h x w x d)  
**Weight:** 300 kg  
**Power supply:** 100-125 VAC/200-240 VAC, 50/60 Hz  
**No of parallel samples:** 72

- Highlights:**
- Works in combination with the COBAS TaqMan 48 Analyzer or COBAS TaqMan Analyzer to automate sample preparation, amplification, and quantitation of RNA or DNA
  - Up to 72 samples and 4 different assays can be loaded onto the system at the same time

### 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

## DETECTION

### Shimadzu – MultiNA



- Highlights:**
- This microchip electrophoresis system quickly and easily performs DNA and RNA nucleic acid size confirmation and semi-quantitation. This system uses microchip technology to conduct fully automated high-speed electrophoresis separation, and fluorescence detection to perform high-sensitivity analysis. Simply place it on the lab bench, instantly perform a run, and quickly see the results.



## AMPLIFICATION/DETECTION

## Roche Diagnostics – Cobas TaqMan Analyzer



**Dimensions:** 950 x 1140 x 750 mm (h x w x d)  
**Weight:** 203 kg  
**Power supply:** 100-125 VAC/200-240 VAC, 50/60 Hz

**Highlights:**

- Higher throughput, 96-test capacity
- 4 independently controlled thermal cyclers
- Amplifies and detects RNA and DNA within hours
- Works with the COBAS AmpliPrep Instrument and Docking Station to fully automate sample preparation, amplification, and detection

## EXTRACTION

## Hain Lifescience – GenoXtract



**Power supply:** 100 - 240 VAC, 50/60 Hz  
**Dimensions:** 445 x 442 x 465 mm (h x w x d)  
**Weight:** approx. 23 kg  
**Power consumption:** max. 180 W  
**Assays:** DNA extraction for GenoType, FluoroType tests and other detection methods  
**No of parallel samples:** 1 - 12

**Highlights:**

- DNA extraction from various sample materials ensuring high yield and purity
- Special pipetting technology using disposable pipette tip
- Easy operation due to ready-to-use kits and pre-installed protocols
- Complete process package from isolation to detection

## Hungry for education?

With us you'll crack the toughest nut.

Classes are held in German!

We offer training and further education in:

- Biomedical Analytics
- Radiological Technology
- Business Administration in Healthcare
- Medical Education
- Mentoring
- Point-of-Care Diagnostic Management
- Medical Information Technology (IT)
- Management Systems in Healthcare



Deutsches Institut zur Weiterbildung für Technologen/-innen und Analytiker/-innen in der Medizin e. V. (DIW-MTA)

German Institut for Further Education of Medical Technologists and Analysts

Welserstr. 5-7 10777  
 Berlin  
 Germany  
 Tel: +49 30 813 74 25  
 Email: [info@diw-mta.de](mailto:info@diw-mta.de)  
[www.diw-mta.de](http://www.diw-mta.de)

## EXTRACTION

### Promega – Maxwell 16 System



- Highlights:**
- Instrument and reagents for walk away DNA and RNA purification
  - Process a variety of sample types for downstream applications in molecular diagnostic and for other clinical applications
  - 1-16 samples purified in only 30min.
  - CE IVD registered
  - One-way cartridges, no cross contamination
  - For tissue, stool, blood, buffy coat, swabs, plasma, serum and other human sample types

## INTEGRATED SYSTEMS

### Roche Diagnostics – cobas 4800 system



- Dimensions:** 900 x 1,660 x 1,010 (x 480) mm, (h x w x d)  
500 x 570 x 600 (z 480) mm
- Weight:** 150 (x 480), 55 (z 480) kg
- Power consumption:** < 600 (x 480), 1,500 (z 480) W
- Assays:** 4800 BRAF V600, KRAS, EGFR, PIK3CA (RUO)\*\*; 4800 CT/NG, HPV, MRSA/SA, Cdiff, HSV 1 and 2, HIV\*, HBV\*, HCV\*, HCV GT\*, UDF enabling Laboratory Developed Tests (LDT) and Research applications

- Highlights:**
- Automated PCR setup frees lab personnel for other tasks
  - Accepts multiple primary vial formats, including liquid-based cytology
  - Supports 8, 24, 48, 72 or 94 batch sizes for efficient reagent usage
  - Less than 20-minute set-up for full run of 94 samples
  - Real-time PCR with digital data capture provides accurate qualitative results with no gray zone
  - Eliminates the need for equivocal sample retesting
  - Advanced results algorithm eliminates the need for manual curve analysis
  - Process up to 384 samples per day on a single system
- \* in development, availability may vary by country.  
\*\* RUO not available on v2.1

### Roche Diagnostics – cobas 6800 system



- Dimensions:** 2,160 x 2,920 x 1,290 mm (fixed), 2,220 x 2,920 x 1,290 mm (movable)
- Weight:** 1,624 kg (fixed), 1,752 kg (movable)
- Sample throughput:** 960 tests/8h, 3,072 tests/24h
- Power consumption:** 3,500 W
- Assays:** MPX (HIV, HCV, HBV), HEV (hepatitis E virus), WNV (West Nile virus), DPX (parvovirus B19 and HAV) nucleic acid tests for donor screening; HIV-1\*, HBV\*, HCV\*, CMV\* quantitative nucleic acid tests for viral load monitoring.

- Highlights:**
- Integrated and fully-automated real-time PCR systems
  - Highest throughput available
  - First 96 results after 3.5 h, up to 384 results after 8 h
  - Maximum walk-away time, 8 h\*\*
  - Mixed batching without presorting

[www.cobas68008800.com](http://www.cobas68008800.com)

\* Currently in development  
\*\* May vary based on workflow demands  
Not available in all markets, including the U.S.

### Roche Diagnostics – cobas 8800 system



- Dimensions:** 2,160 x 4,290 x 1,290 mm (h x w x d)
- Weight:** 2,405 kg
- Power consumption:** 3500 W
- Assays:** MPX (HIV, HCV, HBV), HEV (hepatitis E virus), WNV (West Nile virus), DPX (parvovirus B19 and HAV) nucleic acid tests for donor screening; HIV-1\*, HBV\*, HCV\*, CMV\* quantitative nucleic acid tests for viral load monitoring.

- Highlights:**
- Integrated and fully-automated real-time PCR systems
  - Highest throughput available
  - First 96 results after 3.5 h, up to 960 results after 8 h
  - Maximum walk-away time, 4 h\*\*
  - Mixed batching without presorting

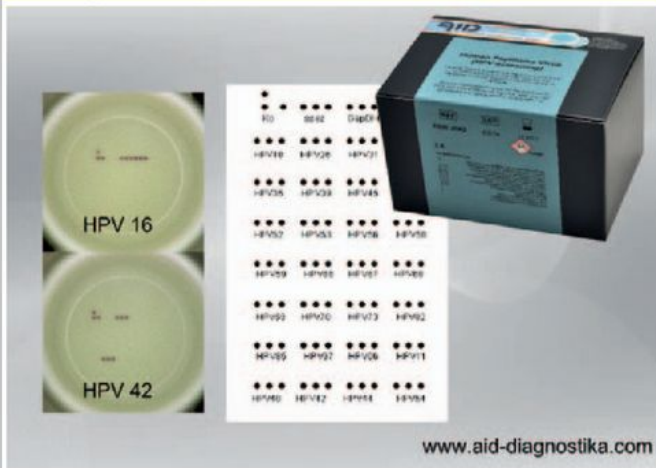
[www.cobas68008800.com](http://www.cobas68008800.com)

\* Currently in development  
\*\* May vary based on workflow demands  
Not available in all markets, including the U.S.



## MICROARRAYS

## AID Diagnostika – HPV Detection Microarray



www.aid-diagnostika.com

## Highlights:

- Detection of 29 HPV genotypes, including HPV 16, 18 and 42
- Single determination of all high risk genotypes of the HPV 30 and 50 group
- Highest sensitivity and specificity
- High throughput analysis on a 96-well format
- Reduced hands-on time due to automated hybridization
- Automated analysis within 2 minutes by means of the AID Reader
- Powerful software features for exporting and data-mining
- Interacts with any lab-specific information system (e.g. LIMS)

## FOR RESEARCH ONLY

## Eppendorf – Mastercycler nexus X2



## Dimensions:

321 x 250 x 412 mm (h x w x 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 – PlateReader AF2200



## Dimensions:

282 x 462 x 458 mm (h x w x d)

## Weight:

16 kg (without accessories)

## Power consumption:

150 W

## No of parallel samples:

6 to 384-well plates

## Highlights:

- Dual-mode plate reader for UV/Vis absorption and fluorescence intensity
- Optimal preconfigured, and freely configurable filter combinations
- Optional  $\mu$ Plate for measuring the smallest sample volumes using own application
- Temperature control and the option to shake the sample plate

## 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.





## Key Facts — Reference Institute for Bioanalytics (RfB)

*Roland Augustin*

RfB – this is the abbreviation for the Reference Institute for Bioanalytics, one of the two German proficiency testing organisations which have been officially charged by the German Medical Association with the performance of proficiency tests for external quality control. Our range of services includes 90 different proficiency test systems across the entire field of laboratory medicine. Since our members are not only from Germany, but from all over the world (present in 76 countries), all our proficiency tests are available in two languages. Performance of our proficiency tests is largely web-based, i.e. booking, transmission of results and evaluation. Delivery of the results and certificates takes place via our web portal. In order to guarantee our high quality level, our employees participate actively in training sessions for physicians and medical laboratory technicians and present results and latest developments at national and international conferences and fairs.

### RfB - Key Facts

- » Approximately 90 EQA panels
- » 30 employees
- » 6.000 customers (app. 600 abroad)
- » 2014 about 110.000 participations
- » More than 30 years experience with EQAs

Results of all of our proficiency tests, are graphically represented, individually and clearly, providing each participant not only with his own results but also with a comparison to the results of the other participants. Quantitative results are represented in a YODEN diagram, an informative chart of the collected data, which is based on the measurements of two samples. Each individual value is marked, together with the underlying overall population and sub-population. The Reference Institute for Bioanalytics (RfB) is a unit of the Foundation for Pathobiochemistry and Molecular Diagnostics. Both institutions are non-profit organisations, which, in accordance with their constitution, increase the quality in medical laboratories by means of proficiency test samples and promote scholarships in the field of laboratory medicine. The Foundation for Pathobiochemistry and Molecular Diagnostics has supported a variety of research projects in clinical chemistry and laboratory medicine with more than eight million euros over the last ten years. The Reference Institute for Bioanalytics has various calibration and reference laboratories,

whose task is to develop reference methods. Thirtyfour reference methods are currently available. In addition, a scientific advisory body supports the RfB in further development of external quality control and reference methods. Proficiency testing coordinators are responsible for the correct performance of the proficiency tests in accordance with the guidelines of the German Medical Association. RfB is also supported by scientific advisers, who, with their profound expertise, are available for consultation in the evaluation of the proficiency tests. In addition, the RfB collaborates closely with a variety of certified partners, who undertake various tasks in the performance of proficiency tests, e.g. in sample preparation, packaging and dispatching of sample material and data collection.

The German Medical Association requires in its guidelines (RiliBÄK) quality standards for medical laboratories which include the implementation of a "Internal Quality Control System" (IQC), and in addition a successful participation in proficiency panels (external quality control) for approximately 150 analytes. In part B, the current version of the guideline, is structured into five subparts (B1 to B5). The Reference Institute of Bioanalysis is nominated by the German Chamber of health for parts B1 (Quantitative Studies), B2 (Qualitative Studies), B4 (Ejaculate) and B5 (Molecular Genetic and cytogenetic studies) as an organization for proficiency panels and has currently applied to be nominated for part B3 (Molecular Diagnostic of Infectious Pathogens). Part B3 includes 52 different pathogens of bacteria, fungi, parasites and viruses. Starting from 2015, the RfB will provide proficiency testing for all analytes. Medical laboratories are able to obtain all mandated ring trials of the RiliBÄK from the RfB. Participation and ordering can be performed at the website [www.rfb.bio](http://www.rfb.bio) (survey program/current survey addendum). Based on the broad range of proficiency panels, the RfB is a competent partner for laboratories working in the field of Clinical Chemistry, Microbiology, Virology, Transfusion medicine and Pathology.



Dr. Roland Augustin  
Chief executive officer  
Reference Institute for Bioanalytics



# Microbiology

Mass Spectrometry  
Identification/  
Susceptibility  
Blood Culture  
Other

**mindray**

**OLYMPUS**

Your Vision, Our Future

 **SHIMADZU**

  
**BRUKER**

**HAIN**  
LIFESCIENCE

## MASS SPECTROMETRY

### Bruker Daltonics – Mali Biotyper



**Dimensions:** 1090 x 510 x 680 mm (h x w x d)  
**Sample throughput:** 200/h

- Highlights:**
- Leading microbial ID system
  - Fast, accurate and cost effective
  - Broad application range
  - Available as IVD or RUO solution

### Shimadzu – iDplus Assurance



- Highlights:**
- iDplus Assurance is a Linear MALDI-TOF for simple microbial identification using SARAMIS and basic analytical life sciences using launchpad. Combining speed of analysis, positive and negative ionization and wide mass range, the iDplus Assurance provides excellent quality and reliability in a general analytical setting.

### Shimadzu – iDplus Confidence



- Highlights:**
- iDplus Confidence is a Reflectron MALDI-TOF. The patented curve-field reflectron design in the iDplus Confidence extends analysis possibilities beyond the simple identification. Expanding on microbial ID, reflectron mode ensures high resolution and high mass accuracy required for molecular profiling and structural analysis.

### Shimadzu – iDplus Performance



- Highlights:**
- iDplus Performance is a MALDI-TOF/TOF. It delivers flexibility and ease of use in a robust and reliable research-grade instrument. Advanced MS/MS performance utilizing the highest collision energy to fragment compounds for accurate structural analysis. The most versatile iDplus platform from simple identification to in-depth proteomics, lipidomics and sequencing.





Bildnachweis: Universität Leipzig, Fotografie: Sven Reichhold

# Mass spectrometry in clinical laboratory diagnostics

*Uta Ceglarek*

In the last two decades mass spectrometry (MS) became increasingly important for laboratory diagnostics. Main advantages like a "reagent-free" simultaneous identification and quantification of multiple analytes within few minutes open up new diagnostic possibilities for laboratory medicine.

A mass spectrometer determines the molecular mass and structure of individual analytes by its mass to charge ratio. It consists of three main components, an ion source, a mass separator and a detector. Several ion sources are available for molecule ionization such as Matrix Assisted Laser Desorption Ionization (MALDI) or electrospray ionization (ESI). Equally, different types of mass spectrometers are available for mass separation by electric and magnetic fields such as time of flight mass spectrometer or quadrupole mass filters. The breakthrough of MALDI-TOF MS for laboratory diagnostics came with the rapid and economically identification of microbiological species, genus and family. Commercial systems are already available ready to use in clinical microbiology which enables a robust and fast typing of bacteria from a positive culture<sup>1</sup>. First applications in the field of clinical virology have been recently developed, too<sup>2</sup>. Moreover, chemical imaging of molecules and proteins directly from tissue sections MALDI-TOF MS is an actual research topic with high potential for diagnostic pathology<sup>3</sup>.

For quantitative mass spectrometric analysis in human body fluids quadrupole mass spectrometry is the dominating technique. To enhance the selectivity of mass spectrometric detection, usually tandem mass spectrometry is applied. Here, two mass spectrometers are coupled in series for the simultaneous analysis of the ionized molecules and one or more characteristic fragments. Quadrupole tandem mass spectrometry is usually combined with liquid chromatography (LC-MS/MS) for the quantitative analysis of multiple analytes over a broad dynamic concentration range. The spectrum of LC-MS/MS applications in the clinical laboratory ranges from single analytes testing to multi-parametric approaches offering high sensitivity and specificity, robustness, and the option for high throughput analyses at low running-costs. Today, LC-MS/MS is established in worldwide newborn screening programs for the

analysis of inherited metabolic disorders<sup>4</sup>. Commercial assays are already available for the therapeutic drug monitoring of immunosuppressants, antidepressants, neuroleptics or antiretroviral drugs<sup>5</sup>. Novel technical developments in the field of mass spectrometry and chromatography enhance the sensitivity and speed and robustness of LC-MS/MS<sup>6</sup>. The combination of different mass spectrometer types (hybrid mass spectrometers) are essential tool for qualitative and quantitative metabolomics and proteomic approaches<sup>7,8</sup>.



**Uta Ceglarek**

University Hospital Leipzig, Institute of Laboratory Medicine, Clinical Chemistry and Molecular Diagnostics  
Liebigstrasse 27, 04103 Leipzig, Germany

- 1 Clark AEI, Kaleta EJ, Arora A, Wolk DM. Matrix-assisted laser desorption ionization-time of flight mass spectrometry: a fundamental shift in the routine practice of clinical microbiology. *Clin Microbiol Rev.* 2013; 26:547-603
- 2 Cobo F. Application of maldi-tof mass spectrometry in clinical virology: a review. *Open Virol J.* 2013. 7:84-90.
- 3 Thomas AI, Chaurand P. Advances in tissue section preparation for MALDI imaging MS. *Bioanalysis.* 2014:967-82.
- 4 Millington DS, Kodo N, Norwood DL, Roe CR. Tandem mass spectrometry: a new method for acylcarnitine profiling with potential for neonatal screening for inborn errors of metabolism. *J Inher Metab Dis.* 1990;13(3):321-4.
- 5 Becker S, Thiery J, Ceglarek U. Evaluation of a novel commercial assay for the determination of cyclosporine A, tacrolimus, sirolimus, and everolimus by liquid chromatography-tandem mass spectrometric assay. *Ther Drug Monit.* 2013. 35:129-32.
- 6 Kortz L, Dorow J, Becker S, Thiery J, Ceglarek U. Fast liquid chromatography-quadrupole linear ion trap-mass spectrometry analysis of polyunsaturated fatty acids and eicosanoids in human plasma. *J Chromatogr B Analyt Technol Biomed Life Sci.* 2013 15;927:209-13.
- 7 Kortz L, Helmschrodt C, Ceglarek U. Fast liquid chromatography combined with mass spectrometry for the analysis of metabolites and proteins in human body fluids. *Anal Bioanal Chem.* 2011. 399:2635-44.
- 8 Lehmann S, Hoofnagle A, Hochstrasser D, Brede C, Glueckmann M, Cocho JA, Ceglarek U, Lenz C, Vialaret J, Scherl A, Hirtz C; IFCC Working Group on Clinical Quantitative Mass Spectrometry Proteomics (WG-cMSP). Quantitative Clinical Chemistry Proteomics (qCCP) using mass spectrometry: general characteristics and application. *Clin Chem Lab Med.* 2013 May; 919-35.

## IDENTIFICATION / SUSCEPTIBILITY

### Hain Lifescience – FluoroCycler 96



**Power supply:** 100 - 240 VAC, 50/60 Hz  
**Dimensions:** 450 x 400 x 460 mm (h x w x d)  
**Weight:** approx. 30 kg  
**Power consumption:** max. 625 W  
**Assays:** FluoroType tests, other PCR tests  
**No of parallel samples:** 1 - 96

- Highlights:**
- Optical thermal cycler for excellent data accuracy, reproducibility, high speed and temperature homogeneity
  - Rapid and precise processing of up to 96 samples
  - Intuitive software guiding you through the program setup
  - High sensitivity and specificity is ensured

### Hain Lifescience – FluoroCycler 12



**Power supply:** 100 - 240 VAC, 50/60 Hz  
**Dimensions:** 240 x 185 x 240 mm (h x w x d)  
**Weight:** approx. 5 kg  
**Power consumption:** 150 W  
**Assays:** FluoroType tests, other PCR tests  
**No of parallel samples:** 1 - 12

- Highlights:**
- Optical thermal cycler combining amplification and detection
  - Highest flexibility using up to 8 units controlled by 1 computer
  - Easy-to-use software guiding you through the program setup
  - High sensitivity and specificity is ensured
  - Low acquisition costs

## BLOOD CULTURE

### Mindray – TDR-X120 Automated Blood Culture System



**Dimensions:** 975 x 600 x 720 mm (h x w x d)  
**Weight:** 162 kg  
**Assays:** TDR Aerobic; TDR Peds; TDR Anaerobic; TDR Resin Aerobic; TDR Resin Peds; TDR Resin Anaerobic  
**No of parallel samples:** 120

- Highlights:**
- Colorimetry system with sensitivity of  $\leq 10$  CFU/ml
  - Applicable for Blood, CSF, peritoneal fluid, pleural fluid, bone marrow, and other sterile body fluid
  - Basic calculation algorithms are sustained acceleration, rate and initial threshold
  - Automatic surveillance and report; supports negative pre diagnostic reports
  - Dual heating systems (solid heating bath and air heating bath)
  - Supports BI-LIS

## OTHER

### Olympus – CKX41 - Compact Inverted Microscope for Routine Use



**Dimensions:** 474 x 238 x 370 mm (h x w x d)

- Highlights:**
- The CKX41 inverted microscope with trinocular head options and fluorescence upgrade capability is suitable for techniques in cell culture. The high-angle tilting head allows quick visual checks, while advanced UIS2 optics produce excellent images.



Blood Glucose  
Blood Gas/  
Electrolytes/  
Oximetry  
Clinical Chemistry  
Hematology  
Coagulation  
Other

*nova*<sup>®</sup>  
biomedical

**Roche**

**EKF**  
DIAGNOSTICS

 **SARSTEDT**

 **KABE**  
LABORTECHNIK

## BLOOD GLUCOSE

### EKF Diagnostics – Biosen C Line



**Dimensions:** 95 x 280 x 280 mm/  
(h x w x d) 168 x 340 x 440 mm depending on model

**Weight:** 5-8 kg depending on model

**Power supply:** 100 - 240 VAC/50 – 60 Hz

**Power consumption:** ≤ 30 W

**Assays:** Glucose, Lactate (Enzymatic amperometric with chip sensor)

**Highlights:**

- With two separate channels, the Biosen C-line measures both glucose and lactate from just one 20µL sample. Delivering results quickly and precisely at the highest standard, the Biosen is a market leader in glucose and lactate analysis.

### EKF Diagnostics – Quo Test



**Dimensions:** 205 x 205 x 135 mm (h x w x d)

**Weight:** 1.3 kg

**Assays:** HbA1c

**Highlights:**

- Fully automated point of care analyser that produces lab accurate HbA1c results in 4 minutes. Using patented boronate fluorescence technology, the Quo-Test delivers fast and reliable results from just 4 µL of blood.

### Nova Biomedical – Nova Max Plus Blood Glucose Monitor Kit



**Dimensions:** 91 x 58 x 23 mm (h x w x d)

**Weight:** 0,075 kg

**Assays:** Glucose and β-Hydroxybutyrate

**Highlights:**

- Nova Max Plus incorporates advanced technology for accurate and precise self-monitoring of blood glucose and ketones by people with diabetes.
- Nova Max Plus has the most comprehensive features for fast, easy, and error-free blood glucose and ketone monitoring.

## BLOOD GAS / ELECTROLYTES / OXIMETRY

### KABE LABORTECHNIK – Consumables for blood gas analysis



**Highlights:** The best sampling system in every situation.

#### Blood gas capillary

- Unbreakable plastic
- Fast drawing
- Crystal clear
- Numerous drawing volumes and diameters available
- Minimum gas permeability for oxygen and carbon dioxide
- Comprehensive range of accessories
- FDA approved

#### Blood gas tube

- Rapid anticoagulation thanks to liquid preparation
- Optimal filling with special piston geometry
- In individual sterile packing

Both sampling systems are prepared with Ca-balanced heparin and are ideal for blood gas and electrolyte analyses on all common blood gas systems.



**Roche Diagnostics – cobas b 123 POC system**



**Dimensions:** 470 x 330 x 320 mm (h x w x d)  
**Weight:** 18 kg  
**Assays:** Bloodgas, Elektrolytes, Metabolites (Lactat, Glucose), CO-Oximetry

- Highlights:**
- Intuitive graphical user interface, touch screen and graphically guided instructions simplify training for point-of-care users
  - Near-patient, whole blood sampling provides results in only two minutes, allowing fast clinical decision making
  - Easily customized to the clinical needs of the intensive care unit, emergency room, neonatal intensive care unit, operating room, dialysis unit or laboratory

**CLINICAL CHEMISTRY**

**Nova Biomedical – StatSensor Creatinine POC Monitoring System**



**Dimensions:** 152 x 83 x 46 mm (h x w x d)  
**Weight:** 0,266 kg  
**Assays:** Creatinine

- Highlights:**
- StatSensor Creatinine is a handheld analyzer and miniaturized, disposable biosensor for whole blood creatinine testing.
  - StatSensor advanced technology enables simple rapid and accurate assessment of renal function by finger stick capillary blood sampling at the point of care.
  - Minimize Risk of Contrast Media Induced Nephropathy (CMIN) - StatSensor provides rapid, point of care renal assessment prior to contrast media imaging
  - Improve Productivity and Workflow - StatSensor point of care testing can prevent costly procedure room openings and workflow interruptions when patients arrive for imaging appointments without a current creatinine/eGFR workup.
  - Improve Patient Satisfaction - StatSensor point of care testing can prevent patient dissatisfaction when renal function must be determined before an image procedure can be performed.

**HEMATOLOGY**

**EKF Diagnostics – DiaSpect Tm**



**Dimensions:** 50 x 90 x 145 mm (h x w x d)  
**Power supply:** Li-Ion Battery gives more than 40 days or more than 10.000 measurements of mobile operation  
**Assays:** Hemoglobin

- Highlights:**
- 1 second lab quality results
  - Cuvettes are insensitive to high temperature/humidity which allows use in all climate conditions
  - 2.5 years Cuvette shelf life even after opening
  - The QC Fluids are stored at room temperature
  - Optional feature of Bluetooth

**EKF Diagnostics – Hemo Control**



**Dimensions:** 160 x 160 x 68 mm (h x w x d)  
**Weight:** 0.7 kg  
**Assays:** Hemoglobin and Hematocrit

- Highlights:**
- Simple point of care analyser to test the level of hemoglobin and hamtocrit from just one drop of blood. Hemo Control is easy to use and delivers results with a CV of <2% after 25–60 seconds.

## COAGULATION

### Roche Diagnostics – coagucheck xs system



- Dimensions:** 138 x 78 x 28 mm (h x w x d)  
**Weight:** 0.127 kg (without batteries)  
**Power supply:** Battery - Four 1.5v AAA alkali-manganese batteries  
**Assays:** INR  
**Highlights:**
- Accurate PT/INR results in one minute
  - Built-in quality control checks each and every strip automatically
  - Lab-equivalent accuracy and precision

## OTHER

### EKF Diagnostics – Lactate Scout +



- Dimensions:** 91 x 55 x 24 mm (h x w x d)  
**Weight:** 0.8 kg  
**Power supply:** 2 type & batteries last for ca. 1,000 tests  
**Assays:** Lactate (Enzymatic electrochemical with single use test strip sensors)  
**Highlights:**
- A hand-held lactate analyzer that requires 0.2 µl of capillary blood and returns fast and reliable results in 10 seconds. Up to 250 results can be stored on the device which also features stopwatch and countdown timers for performance measurement.

### Nova Biomedical – StatStrip Lactate POC Analyzer



- Dimensions:** 152 x 83 x 46 mm (h x w x d)  
**Weight:** 0,266 kg  
**Assays:** Lactate  
**Highlights:**
- StatStrip Lactate is a handheld, true point-of-care testing system that brings lactate testing directly to the patient's bedside.
  - StatStrip Lactate point-of-care testing provides the fastest turnaround time possible (13 seconds), on the smallest whole blood sample (0.6 microliters), and can be easily operated by medical and nursing staff.
  - StatStrip Lactate is a very low cost device that makes lactate testing practical and affordable in any size ED, ICU, or Medical Unit.

### Roche Diagnostics – cobas b 101



- Dimensions:** 184 x 135 x 234 mm (h x w x d)  
**Weight:** 2 kg (without power supply)  
**Power consumption:** max 60 W  
**Highlights:**
- IVD test system offering HbA1c and a complete lipid profile (CHOL, HDL, LDL, TG, non-HDL, TC/HDL) on one device at the Point of Care
  - results in 6 min.
  - Intended for professional use in a clinical laboratory setting or point-of-care locations



### Roche Diagnostics – cobas h 232 POC system



<b>Dimensions:</b>	275 x 102 x 55 mm (h x w x d)
<b>Weight:</b>	0.65 kg
<b>Power supply:</b>	Input: 100 to 240 VAC, 50 to 60 Hz, 400 mA
<b>Assays:</b>	Troponin T, NT-proBNP, D-dimer, CK-MB, Myoglobin
<b>Handheld/Stationary:</b>	Handheld

- Highlights:**
- Test results in 8 - 12 minutes
  - Supports on-the-spot decisions in cardiovascular diagnosis and treatment
  - Ideal where space is limited – for example at the bedside, in triage bays or designated lab areas
  - Designed for use in a physician's office, in hospital emergency and critical care settings or in pre-hospital situations such as in ambulances or helicopters

### 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



## Integrated solution management for your laboratory

IT in a laboratory should never be the problem, but always the solution.

**labcore** is much more than conventional IT strategic advice. We provide highly specialized service modules for medical laboratories:

- Drawing up specifications
- Support of supplier selection processes (tenders)
- Orchestration of existing IT solutions/processes
- Implementation of QM specifications
- IT project management
- Modelling data and material flows in laboratory networks
- Use of in-house IT solutions (e.g. Doc-db for document and quality management)

dr. neumann&kindler

[www.labcore.de](http://www.labcore.de)



*LabCentre helps scientists, technicians and management staff to track samples and testing processes, communicate results to other health professionals, and monitor costs and reporting.*

# LabCentre - Agility and Accuracy in the Laboratory

Laboratories are an essential part of effective modern healthcare.

They provide clinicians with vital information that helps them make life-saving decisions, diagnose conditions and monitor patient treatment.

With such a critical role in healthcare delivery, laboratory scientists and support staff depend on the very latest technologies to help them carry out their jobs. They need software solutions that work the way they work, that integrate with the devices and technologies they use, and that speed up the analysis they do every day. LabCentre is designed with the needs of those professionals in mind. It is a comprehensive laboratory information management system that helps scientists, technicians and management staff to track samples and testing processes, communicate results to other health professionals, and monitor costs and reporting. Compatible with the

most widely used information standards and protocols in the industry, it helps to connect laboratory employees with people throughout the healthcare ecosystem. LabCentre includes dedicated functionality for every laboratory discipline, and each module of the software has been designed to allow users to create intelligent workflows, helping them to complete laboratory tasks in the most efficient way.

One important factor behind this widespread uptake is the flexibility of the software. Managers can customise the product to function exactly as their organisations require, while individual users can modify

specific functions to suit the processes within a particular laboratory environment. LabCentre has a modular construction so organisations can choose to roll out the product in stages. Many laboratories prefer to deploy one module at a time, ensuring a smooth transition process from legacy systems. All laboratory organisations understand that healthcare technology ultimately has a single purpose: to improve patient care. By increasing the speed and efficiency of laboratories, LabCentre helps institutions to do just that.

[www.isoftware.com](http://www.isoftware.com)



# Information Technology

LIS  
Middleware  
Other



## LIS

### Infomed CS – sLis Enterprise Suite



sLis Enterprise Suite for Clinical & Radiology Laboratories is a process-optimized framework that supports health professionals in the prompt delivery of their services, helps them to set the laboratory under control and minimize the cost, with efficiency and safety.

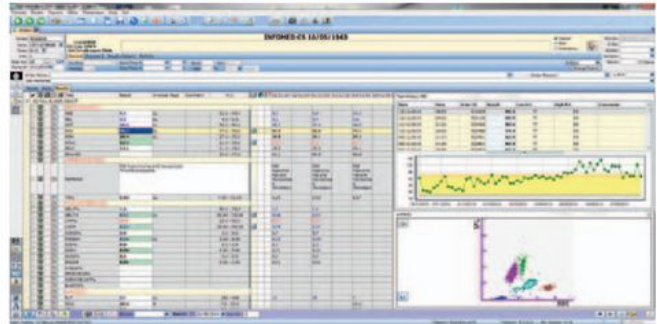
It listens closely to today's Clinical and Radiology Lab departments growing demands and offers specific process driven modules and a strong system management tool that enables any health organization to easily adapt the Laboratory workflow.

The client has the ability to compose his coherent solution, based on sLis Platform, combined with the appropriate sLis Modules, deployed and configured properly via sLis Toolkit, sharing the same database and integrated with third party applications.

The system provides among others:

- Enterprise-wide information management
- Seamless multi-site management & multilingual support
- Full Front & Back Office support
- High level security & availability
- Quality assurance support

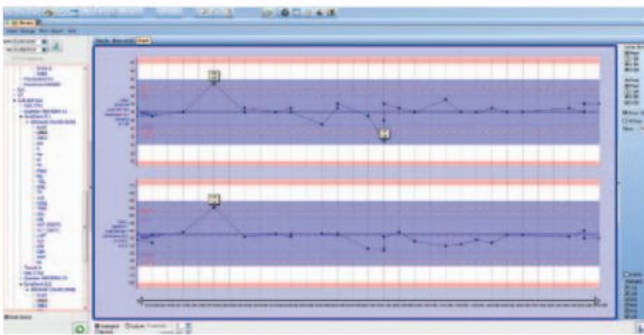
### Infomed CS – sLis Enterprise L.I.S.



sLis Enterprise L.I.S. is a complete solution, designed and developed by Infomed software engineers team, expertized and experienced for more than 20 years in health informatics market, in order to:

- Improve the procedures and the everyday routine operations of clinical Lab
- Be adapted in any health unit, from a small private laboratory to a complex, multisite, multilingual clinical laboratory installation
- Fully integrate with all the known HIS/ERP/CIS of the market, adapting with reliability the HL7 protocol
- Provide process efficiency via streamlined, easily configurable data edit & review procedures
- Enable enhanced reporting via the embedded report generator & the ad-hoc query builder tool
- Incorporate the automate distribution of results via native e-mail & fax server
- Allow remote access via sLis Enterprise web module, encouraging interactions with referring doctors and senders from any location
- Support the accreditation process, establishing organization SOP's

### Infomed CS – sLis Enterprise QC



sLis Enterprise Quality Control Module offers to the laboratories extended capabilities in order to ensure result accuracy and manage quality assessment.

Using the state of the art technology of sLis Enterprise Suite, conforms with the international quality assurance standards, supports internationally recognized QC methods such as Levey-Jennings control charts and Westgard Rules and offers many unique features.

With its incredibly functional interface the Quality Control Module allows instant accessibility to QC results and incidents with graphical and textual representation.

Product Key Benefits:

- Full management of the controls and test procedures
- Instrument integration for data collection automation
- Laboratory fully logs controls, results, and incidents of analyzers
- Various export formats
- Conforms to national and international regulatory reviews
- Organization-wide standardization of processes

### iSOFT – LabCentre



LabCentre is a market-leading laboratory 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.

Highlights:

- Built-in smart workflows and decision support tools
- Multi-site capability
- Specialist functionality designed for each laboratory discipline
- Puts patients at the heart of the analytical process



## Medat Computer-Systeme – Medat



**medat**  
Computer-Systeme

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

## MELOS – LIS R 6



- Highlights:**
- Only one sample for numerous, different lab workflows (mixed orders).
  - Outstanding speed and performance even for large volumes and complex laboratory networks.
  - Order entry: (manual, automatic, rule-based (statements)); high automated laboratory; Environmental, Animal or Specialised laboratory (genetics, immunohematology, microbiology...)
  - Analytics: Sample workflow/tracking; Onlines (currently 200 drivers in stock); Material management
  - Quality management: Integrated monitoring-tool for automated quality control
  - Flexible validation (via ruling, classes, tracker)
  - Reports accessible by SMS, fax, email, web (MDN), paper print
  - Flexible invoicing: health insurance invoicing (Model 10/10A), private, monthly, IGEL (Individual Health Care), human, veterinary, hygiene, medical studies, interfaces (PVS, SAP, Navision, DATEV), electronic settlement
  - Data Mining

## MELOS – MELOS Diagnostic Network (MDN)

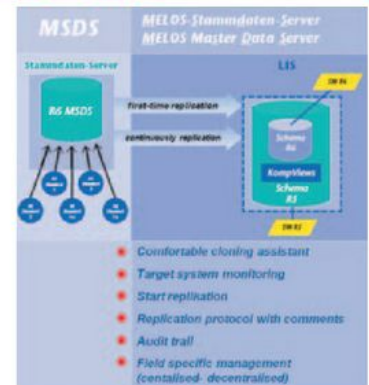


- Highlights:**
- The new module family "MELOS-Diagnostic Network" (MDN) provides current lab system informations on a web server and contributes to customer satisfaction and to a dynamic networking with your clients.

The secure Web interface for your customer.

- Internet security (VPN, SSL, certificates, TAN)
- pdf-reports, direct LDT data download
- Additional request to current lab orders, web shop
- Lab services requests for new patients
- Material order management, electronic budget transmission
- Formular generator (request via customer-specific designed formulars)
- Interface of medical practice and MDN in secure web interface.
- VisioPush (Patient data are transferred to the MDN by MicroNova driver)
- VisioDok (Value-added service for medical practises.  
Our partner is MicroNova)
- Strong customer connection
- Low costs and training in the surgery
- Entry-costs reduction (electronic orders)

## MELOS – MSDS - MELOS-Master Data Server



- Highlights:**
- The Master Data Server (MSDS) enables central data storage for single labs and lab networks.

MultiSite, MultiLab and Multilingual

Advantages

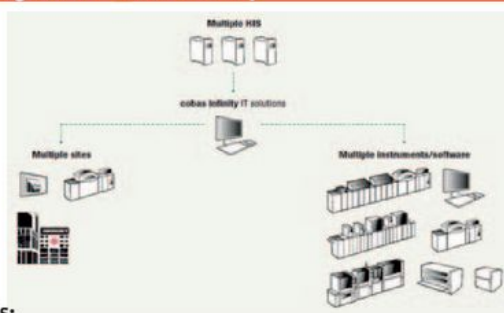
- Avoidance of redundancy
- Reduction of time to market intervals
- Speed and low costs for master data administration
- Highly productive sample consignment
- Cloning and duplicate groupwide
- Fast scheduled replication
- Recording of mass data and fast searching
- Audit trails and analyses of data differences
- Field specific management of table columns
- Integrated Lightweight Directory Access Protocol possible

MELOS - Quality, performance and innovation for more than 25 years. Professional IT software solutions around the laboratory with a comprehensive range of services.

www.melosgmbh.de

## LIS

### Roche Diagnostics – cobas infinity



#### Highlights:

Responding to evolving needs of clinical laboratories

Simplicity - see what is needed

- Consistent look and feel across all user interfaces for ease of use and better communication throughout laboratories
- Personalized work areas that can be tailored for specific users to enhance efficiency and streamline routine processes
- Web-based technology makes maintenance easier and keeps the laboratory running smoothly

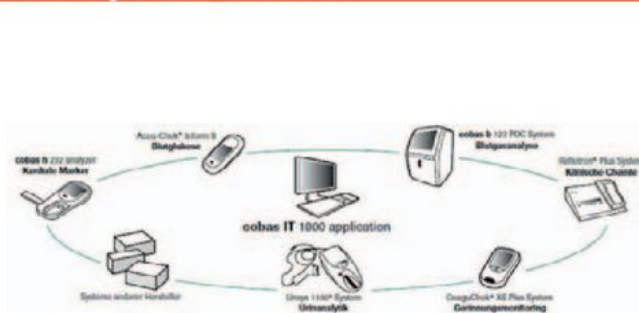
Flexibility for growth - see what is possible

- Modular architecture underpins a scalable solution to meet current and future needs
- Supports a wide range of laboratory disciplines with potential to expand from single-site to multi-site networks

Confidence in performance - see what is important

- Dashboard shows real-time performance of the laboratory
- Consistent approach with intelligent rule engine supports quality control in the laboratory

### Roche Diagnostics – cobas IT 1000



#### Highlights:

cobas IT 1000 – Work Area Manager for Hospital Point of Care

cobas IT 1000 solution offers complete IT solution for Hospital Point of Care devices like Roche Cardiac Readers, cobas h232, cobas Blood Gas Analyzers & Non-Roche point of care instruments.

- Fully compliant with legal requirements (e.g. RiliBÄK by German Medical Council)
- Extensive medical documentation improves patient management (via EHR), controlling, billing and delivers complete cost transparency
- Automatic filters emphasize critical patient- or quality control results
- Supports centralized POCT responsibilities

## MIDDLEWARE

### 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

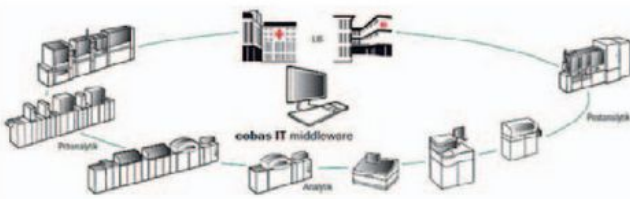


#### Highlights:

- 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.



## Roche Diagnostics – cobas IT middleware



**Highlights:** cobas IT middleware is Roche's latest advance in customised IT applications for totally automated laboratory workflows. Designed to take over the coordination of routine laboratory processes, this solution makes it easy to link multiple laboratory systems and software applications to a facility's IT infrastructure.

- Workflow engine to set-up and execute sample workflows allows flexible configuration of priorities of involved systems, alternative routings and combining of different workflows
- Configuration of rules for auto-validation, including management of version and draft rules
- Up to 100 connected instruments, 20 pre-analytic instruments, 5 post-analytic instruments
- Over 170 Roche and 3rd party instruments and devices supported

## OTHER

### COMED – Reagent Management System -RMS / e-commerce / controlling



**Highlights:** Starting as a software company for medical IT in 1986, COMED evolved to an international solution provider offering vendor independent optimization concepts and solutions for laboratories, hospitals and rehab clinics. COMED's unique fusion of IT, consulting and extensive industry know-how and a broad personal network, nowadays serves > 20.000 physicians, > 500 hospitals and > 250 laboratories in 17 countries worldwide.

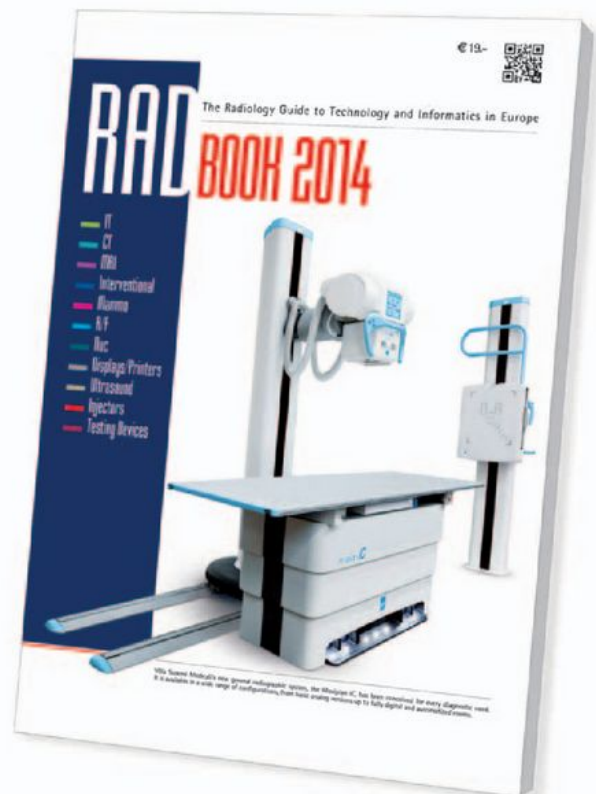
TÜV-certified (DIN EN ISO 9001:2008) and GAMP 4/5 audited, family owned COMED continues the research and development of standardizing new solutions and technologies within healthcare facilities, like reading any vendor independent barcode or utilization of RFID-technologies in laboratories, with one goal: Enable laboratories, hospitals and rehab clinics to focus and gain their value-added chain.

RMS - Reagent Management System - is the leading inventory management, supply chain-, controlling- and e-commerce solution for laboratories.

## Radox – Acusera 24.7 Live Online



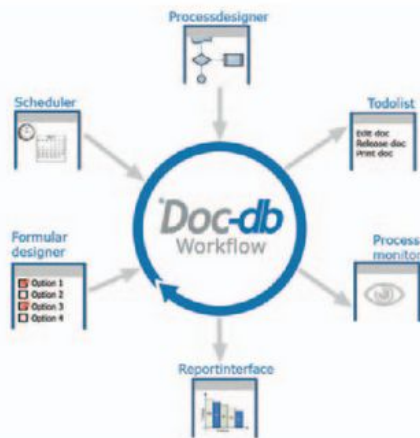
**Highlights:** Designed to accompany our range of third party controls, Acusera 24.7 Live Online will transform the way you interpret QC data. Online access to interactive charts and peer statistics updated daily will improve error detection and enable real time performance monitoring across multiple platforms.



visit us at  
[www.european-hospital.com](http://www.european-hospital.com)

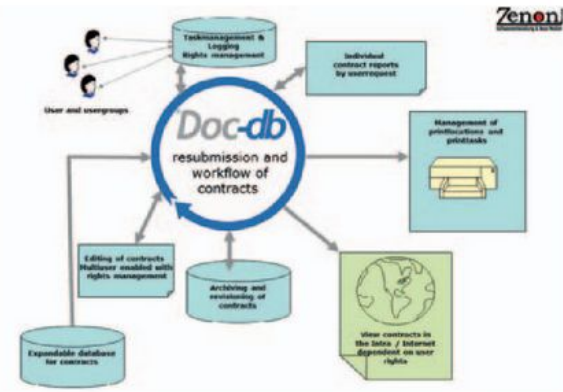
## OTHER

### Zenon – Doc-db QM Suite



- Highlights:**
- Doc-db is a fully featured document management system. The integrated, freely configurable workflow server makes it easy to adapt to your specific governance processes.
  - The creation of documents, read confirmations, reminders, paper copies and many other processes can be comfortably managed, monitored and documented through the system.
  - Handling of all file formats enables easy migration of your existing documents into professional document control with Doc-db.
  - This will ensure that you are fit for the requirements needed for the ISO 15189 or ISO 17025 accreditation.

### Zenon – Doc-db QM contract management



- Highlights:**
- The Doc-db contract management module can be used to store and retrieve contracts in a Doc-db Database.
  - Resubmissions of contracts can be configured in their workflows.
  - Editing of contracts is multiuser enabled.
  - Contracts in Doc-db are full text indexed and therefore searchable. User defined contract attributes can be used to assign reportable metadata to the contracts (searchable, too).
  - The print- manager supports the controlled and logged printing of contracts.
  - Standard contract report of a single contract and contract overview report delivered.
  - Zenon offers the programming of individual contract reports depending on your needs.

CSC

# AGILITY AND ACCURACY IN THE LABORATORY

Playing a critical role in healthcare delivery, laboratory scientists and support staff depend on the very latest technology to help them carry out their jobs. They need software solutions that work the way they work, that integrate with the devices they use, and that speed up the analysis they do every day. That's where **LabCentre** delivers.

**LabCentre** is a market-leading laboratory 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.

[CSC.COM/HEALTH DE](http://CSC.COM/HEALTH_DE)



# Push and pull – extending quality management information

Stefan Szepanek

Quality management (QM), a major issue in medical laboratories for the past years, is mainly driven by lab customers, legal requirements and the necessity to comply with ISO standards such as ISO 15189 and 22870. Especially ISO 15189 is a well-accepted tool to manage quality in the lab, to the extent that the German Medical Association (Bundesärztekammer) bases its requirements for quality management in German labs on this standard.

## Beyond the core process

The core production process of a lab includes ordering, sample transportation, pre-analytics, analytics, post-analytics and result reporting. The process itself as well as its documentation is defined by the technical environment – the software set-up and the degree of automation in the lab.

The core process is supported by a wide variety of upstream and downstream processes which cover the lab's activities. Their task is to provide resources to the core (purchase, evaluation of suppliers, staff management), to handle deviations (complaint management) or to measure and evaluate the performance of processes and quality of products (management review).

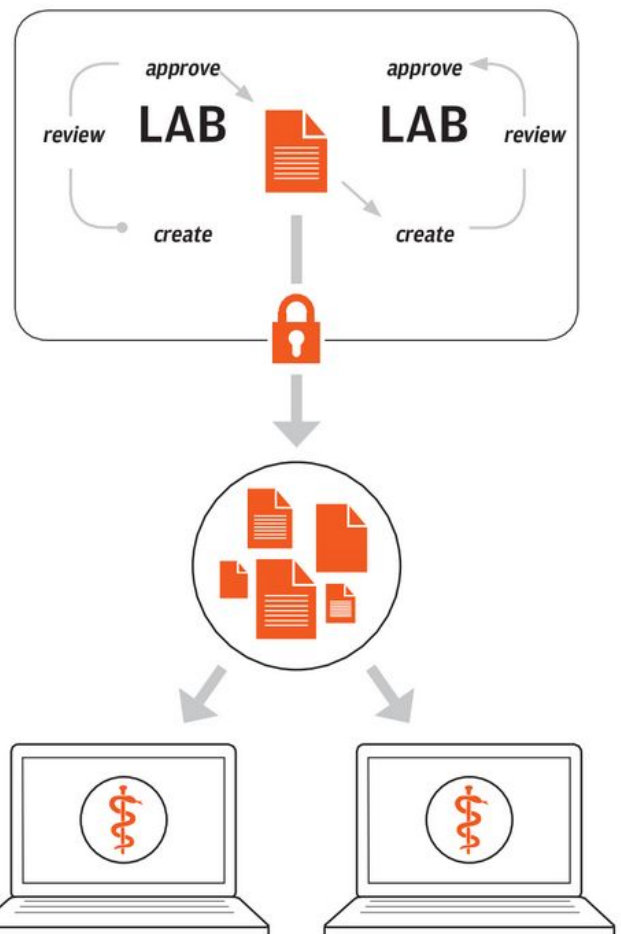
Today, all these processes are minutely controlled and documented. Suitable software is available and widely used in the laboratories.

## Quality portal – a controlled connection to your customers

However, a software system to handle your own processes, e.g. document management software to control documents, is only part of the story. But how do you get vital information on your lab, its organisation, its workflows, its processes and its quality management out to your customers? Via a quality portal. With the quality portal you create a controlled and restricted environment which your customers can access to browse relevant quality documents of your lab. They pull information which allows them to better understand your processes and quality assurance procedures and ultimately to use your services more efficiently – a good way to create confidence, customer satisfaction and customer loyalty.

## Quality networks – a controlled exchange of documents with your partners

In a laboratory network it is the responsibility of the quality board to draft key policy documents and to make them available to each location. This requires an inter-network document exchange



protocol: each quality document which has been released by the quality board is automatically **pushed** to the individual partner sites for local adoption. The protocol covers numerous use cases, from receiving and integrating online documentation from the diagnostics supplier, distributing medical guidelines through the network to sending information sheets to the partners.

Openness with regard to your own quality processes not only enhances your standing with customers and network partners, it also increases staff satisfaction, promotes collaboration and improves the overall quality of the laboratory network.



Stefan Szepanek works as Head of Development for Zenon GmbH, Bochum, Germany.

# Non-Diagnostic

**eppendorf**

**Hettich**  
LAB TECHNOLOGY

**DÜRR  
TECHNIK**

**EKF**  
DIAGNOSTICS

**SIGMA**

**KABE**  
LABORTECHNIK

**SARSTEDT**

**Belimed**  
Infection Control

Centrifuges  
Compressors  
Incubators  
Washers/Desinfectors  
Liquid Handling  
Pipette Tips  
Container Systems  
Histology Equipment  
Other



## CENTRIFUGES

### EKF Diagnostics – PlasmaPrep-12



**Dimensions:** 254 x 254 x 381 mm (h x w x d)  
**Weight:** 7.7 kg  
**Power consumption:** 120V 60Hz ± 10% 150W,  
 230V 50Hz ± 10% 150W

- Highlights:**
- High-speed bench top rapidly separates blood in original evacuated collection tubes
  - Fast blood separation greatly reducing turn-around time
  - Separates Platelet-poor-plasma in 3 minutes and Platelet-rich-plasma in 30 seconds
  - Rotor capacity: 12 place

### Hettich Lab Technology – ROTOFIX 32 A



**Max. number of tubes:** 12 cyto chambers, 28/20 blood collection tubes (13 x 75/100 mm)  
**Rotational frequency:** 6,000/min  
**Relative centrifugal force:** max. 4,226 x g  
**Dimensions:** 257 x 366 x 430 mm (h x w x d)  
**Weight:** 23 kg

- Highlights:**
- Benchtop centrifuge for clinical chemistry and cytology
  - Large selection of cyto accessories for spin preparations
  - Cyto packages for urine and CSF cytology: Centrifuge, rotor (optionally open or with leaktight lid), clips and cyto-chambers

### Hettich Lab Technology – ROTINA 420



**Max. number of tubes:** 104 x blood collection (13 x 75/100 mm)/  
 52 x 15 ml conical tubes  
**Rotational frequency:** max. 15.000/min  
**Relative centrifugal force:** max. 24.400 x g  
**Dimensions:** 423 x 506 x 650 mm (h x w x d)  
**Weight:** 75 kg

- Highlights:**
- Strong performance - wide range of accessories
  - Rotors and adapters for all common applications
  - Comfortable control panel, 98 program storage spaces
  - Automatic lid locking
  - Aerosoltight bucket lids with convenient single hand lid lock

### Sigma – Sigma 2-6



**Rotational frequency:** 4000/m (equipped with rotor 11030 + 2 x 13037)  
**max. number of tubes:** 4 x 6 x 15ml (equipped with rotor 11030 + 2 x 13037)  
**Relative centrifugal force:** 2,379 (equipped with rotor 11030 + 2 x 13037)  
**Dimensions:** 300 x 365 x 452 mm (h x w x d)  
**Weight:** 20,4 kg (without rotor)  
**Power consumption:** 130 W

- Highlights:**
- Speed preselection up to 4.000 rpm
  - Stainless steel bowl
  - Inbalance switch

## CENTRIFUGES

### Sigma – Sigma 1-16



**Rotational frequency:** 12,000/m (equipped with microhematocrit rotor 11024)  
**max. number of tubes:** 24 capillary tubes with microhematocrit rotor 11024  
**Relative centrifugal force:** 13,684 (equipped with microhematocrit rotor 11024)  
**Dimensions:** 271 x 310 x 418 mm (h x w x d)  
**Weight:** 13 kg (without rotor)  
**Power consumption:** 170 W

**Highlights:**

- Microcentrifuge
- Lid with viewing window for independent speed measurement
- Maintenance-free motor
- Stainless steel bowl
- Overspeed control
- Low temperature increase during continuous operation

### Sigma – Sigma 3-16L



**Rotational frequency:** 4,200/m (equipped with rotor 11180 + 2 x 13180)  
**max. number of tubes:** 4 x 20 x 5 ml (equipped with rotor 11180 + 2 x 13180)  
**Relative centrifugal force:** 3,372 (equipped with rotor 11180 + 2 x 13180)  
**Dimensions:** 355 x 460 x 600 mm (h x w x d)  
**Weight:** 48 kg (without rotor)  
**Power consumption:** 440 W

**Highlights:**

- Universal tabletop centrifuge
- Speed range up to 15,300 /min
- Capacity of 4 x 400 ml or 48 x 15 ml to the reaction vessel through different adapters in the same bucket
- Magnetic rotor identification prevents the rotor from overrevving
- Imbalance switch

### Sigma – Sigma 4-5L



**Rotational frequency:** 4,700/m  
**Relative centrifugal force:** 4,470 (equipped with rotor 11660 + 2 x 13460)  
**Dimensions:** 390 x 496 x 834 mm (h x w x d)  
**Weight:** 77 kg (without rotor)  
**Power consumption:** 1200 W

**Highlights:**

- Maximum capacity of 4 x 650 ml or ~144 blood tubes down to microtubes with different adapters in the same bucket
- Suitable for low speeds e.g. for cell sedimentation, accuracy +/- 1 /min
- Optimized for swing-out applications
- Up to 20 g imbalance tolerance

## COMPRESSORS

### Dürr Technik – SICOLAB - compressor station



**Dimensions:** 510 x 580 x 653 mm (h x w x d)  
**Weight:** from 66 kg  
**Noise level:** from 46 db(A)  
**Air flow:** up to 145 l/min at 5 bar  
**Compressed air quality:** up to 1:2:1  
 [according to ISO 8573-1]

**Highlights:**

- Oilfree compressed air for many applications
- Silent – thanks to excellent soundproofing
- Compact – fits under the laboratory bench
- Mobile – with wheels and handling grips
- Wide variety of versions
- Membrane dryer and filter as options



## INCUBATORS

### Eppendorf – Thermomixer F0.5/F2.0



**Dimensions:** 163 x 206 x 304 mm/  
(h x w x d) 170 x 206 x 304 mm (F2.0)  
**Weight:** 6.2 / 6.3 (F2.0) kg  
**Maximum speed:** 2,000/1,500 (F2.0) / min  
**Temperature range:** 4 °C above RT to 100 °C

**Highlights:**

- Temperature accuracy: Max.  $\pm 0.5$  °C at 20-45 °C
- Heating and mixing in 0.5 mL (F0.5) or 2.0 mL reaction vessels (F2.0)
- Efficient mixing up to 1,500 rpm (F2.0) or 2,000 rpm (F0.5)
- Excellent mixing performance due to unique 2D-Mix-Control technology

### Hettich Lab Technology – HettCube 600 R



**Temperature range:** 0 °C to +65 °C  
**Internal volume:** 520 l  
**Power consumption:** 49 W/h at +37 °C  
**Dimensions:** 1990 x 535 x 690 mm (h x w x d)  
**Weight:** 163 kg

**Highlights:**

- Sustainable - economic - high quality
- Best growth conditions
- Temperature: Constant and homogeneous distribution
- Eco-friendly: Low Power consumption - small carbon footprint
- More validated usable volume, footprint reduced by up to 50 %

## WASHERS/DESINFECTORS

### Belimed – Washer-Disinfector WD 60



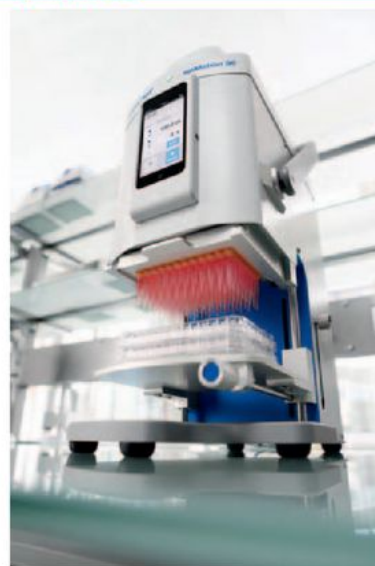
**Internal volume:** 150 l  
**Dimensions:** 850 x 600 x 600 mm (h x w x d)

**Highlights:**

- These compact washer-disinfector WD 60 have been designed for the usage in hospitals, medical practices and laboratories. The modern, hygienically designed washers - disinfectors contain a high-quality wash chamber for excellent cleaning and drying performance.

## LIQUID HANDLING

### Eppendorf – epMotion 96



**Dimensions:** 229 x 457 x 533 mm (h x w x d)  
**Weight:** 19 kg

**Highlights:**

- 0.5 to 300  $\mu$ L volume range with one system
- 96 parallel channels for semi-automated electronic pipetting
- Intuitive software and convenient touch control
- Excellent pipetting precision <3% and accuracy <2% (at 1  $\mu$ L)

## LIQUID HANDLING

### Eppendorf – epMotion 5070/5075



**Dimensions:** 630 x 650 x 480 mm/  
(h x w x d) 670 x 1070 x 610 mm (5075)  
**Weight:** 45 kg (without accessories)/85 kg (5075)  
**Power consumption:** 150 / 700 (5075) W  
**Deck positions:** 4/15 (5075) SBS/ANSI

- Highlights:**
- Maximum pipetting accuracy from 1 to 1,000 µL
  - Optical sensor for verifying liquids, labware, tips
  - Compatible with tubes (0.2 ml to 50 ml) and microplates with up to 384 wells
  - Three thermal module options for heating or cooling of samples or reagents (5075)

### Eppendorf – Easypet 3



**Type:** Pipette Controller

- Highlights:**
- Intuitive and convenient speed adjustment made simple with the tips of your fingers
  - Lightweight, well-balanced and ergonomic design that allows for fatigue-free pipetting
  - Vibrant backlit LEDs provide optical feedback of the remaining battery life
  - Lithium polymer rechargeable battery offers long cordless runtime
  - Smooth setting of pump speed
  - Operation while recharging is possible
  - Autoclavable pipette adapter for sterile applications
  - Quick release of aspirating cone for easy exchange of membrane filters

### Eppendorf – Multipette M4



**Type:** Dispenser

- Highlights:**
- Repetitive dispensing modes allowing the user to fill the tip once and dispense up to 100 times without a refill
  - Automatic combitip recognition eliminates time-consuming volume calculations
  - Wide dispensing range: 1 µL to 10 µL
  - Integrated step counter: dispensing procedures can be continued error-free after an interruption or distraction
  - Central combitip ejector: fully emptied Combitip can be easily ejected with one hand
  - Perfect for viscous or foaming solutions and liquids with high vapour pressure through direct displacement principle
  - Safe handling of toxic, radioactive or infectious material

### Eppendorf – Reference 2



**Type:** Pipette

- Highlights:**
- One-button operation offers fast handling with reduced operating effort and active aerosol reduction. To avoid accidental tip ejection a clear haptic feedback is provided.
  - Spring loaded tip cone improves user-to-user reproducibility and improved ergonomics by lowering tip attachment force
  - High flexibility incl. a spring-loaded tip cone which can be switched on/off optionally
  - Secondary adjustment supports easy adjustment for most accurate pipetting of different liquids without the need for a full calibration.
  - External edges made from stainless steel equip the pipette with outstanding robustness
  - Embedded RFID chip with all data regarding the pipette offers a simple identification and documentation with Eppendorf TrackIT



## 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

## CONTAINER SYSTEMS

### KABE LABORTECHNIK – Primavette



**Highlights:**

The safe and variable blood collection system.

- Gentle - Aspiration technique suitable for all vein conditions.
- Safe - Unbreakable, high-quality plastic ensures maximum user and patient safety.
- Clean - The high grade rubber membrane closure guarantees absolute tightness.
- Flexible - Vacuum technique possible.
- Variable - For single collection also available with Luer cone.
- Versatile - Available in different tube sizes and preparations.
- Comprehensive - Offered with a broad range of accessories.

### SARSTEDT – Microvette - Capillary Blood Collection



- 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  $\mu$ l, 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.

### SARSTEDT – Multi-Safe Disposal boxes



**Highlights:**

- Our wide, tailor-made range of Multi-Safe disposal boxes corresponds to the current European directive on the prevention of needle stick injuries.
- With our extensive product range of Multi-Safe boxes we are able to meet any disposal need in the field of medicine and laboratory.
- With the various options, from the convenient 200 ml format to the autoclavable 60 l disposal box for clinical waste, we offer an optimal solution for every need.

## CONTAINER SYSTEMS

### 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.

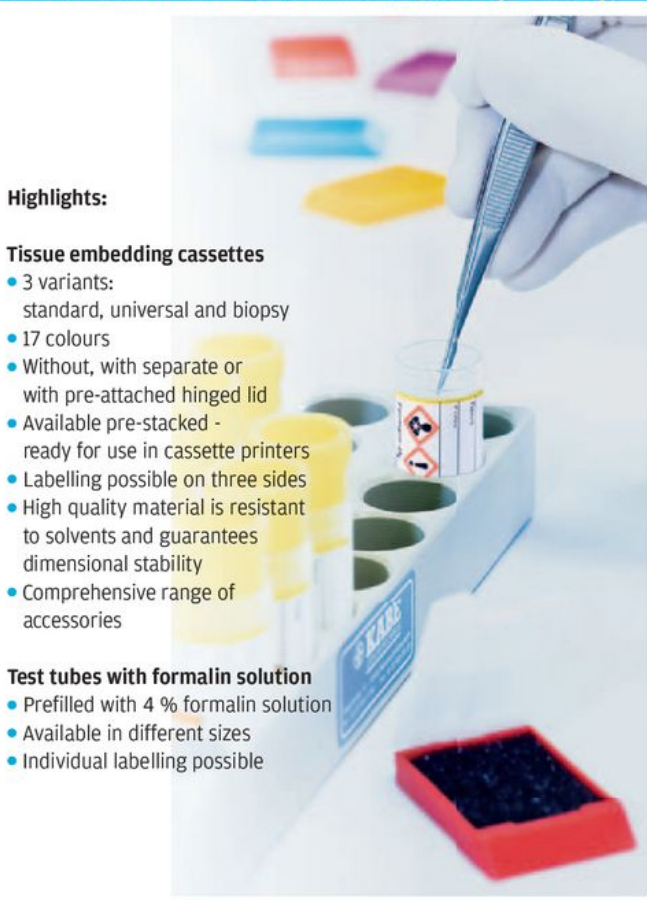
### SARSTEDT – Salivette - Saliva Collection



- Highlights:**
- Simple, hygienic collection of saliva for diagnosis and therapy monitoring for various different parameters.
  - For saliva collection, the Salivettefi is available with different swab options: a plain cotton swab, a cotton swab with citric acid preparation to stimulate salivation, and a synthetic swab specially designed for cortisol determination.

## HISTOLOGY EQUIPMENT

### KABE LABORTECHNIK – Consumables for pathology/histology



**Highlights:**

**Tissue embedding cassettes**

- 3 variants: standard, universal and biopsy
- 17 colours
- Without, with separate or with pre-attached hinged lid
- Available pre-stacked - ready for use in cassette printers
- Labelling possible on three sides
- High quality material is resistant to solvents and guarantees dimensional stability
- Comprehensive range of accessories

**Test tubes with formalin solution**

- Prefilled with 4 % formalin solution
- Available in different sizes
- Individual labelling possible

## OTHER

### 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.



## 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 – Safety-Lancets

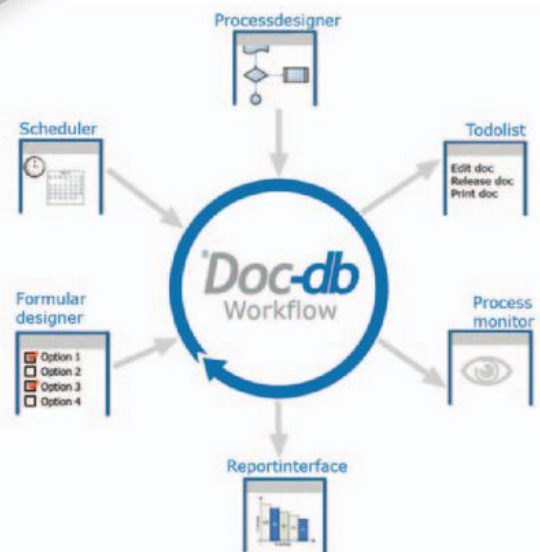


### Highlights:

- Our sterile Safety-Lancets enable the safe, gentle collection of capillary blood.
- Since the needle point or blade is safely concealed before and after use, the risk of needle injuries and cross contamination is eliminated when the lancets are used according to the instructions.
- Our product range covers the most varied of skin types and the entire range of blood volumes to be extracted.
- The lancets cannot technically be reused once they have been triggered, and can be safely disposed of in our disposal boxes.

## Doc-db IS AN INNOVATIVE SOLUTION FOR YOUR QM DOCUMENTATION:

- Automatically controls the creation process of the documents  
*create » review » approve*
- Publishes the documents  
*print, PDF, e-mail*
- Maintains the archive and version history
- Supports user interaction by task lists
- Supports quality managers with highly sophisticated tools:  
*Process designer*  
*Process monitor*  
*Report interface*  
*Scheduler*



**Zenon** GmbH  
Softwareentwicklung & Neue Medien

www.docdb.de

# Companies / Suppliers

## PAGE INDEX

**AB Sciex, Life Sciences Holdings France SAS**  
 Parc Technopolis - Bâtiment Sigma, 3 avenue du Canada  
 91940 Les Ulis, France  
 ☎ +33 1 601986 00  
 orders@absciex.com  
 www.absciex.com



Automation	Sample Processing	Clin. Chem./Immuno	Mass Spectrometry	Hematology	Pathology	DNA	Microbiology	POCT	IT	Non-Diagnostic	Container
			28								

**AID GmbH**  
 Ebinger Straße 4  
 72479 Strassberg, Germany  
 ☎ +49 7434 9364 0  
 info@aid-diagnostika.com  
 www.aid-diagnostika.com



						43					
--	--	--	--	--	--	----	--	--	--	--	--

**Axon Lab AG**  
 Täferstraße 15  
 5405 Baden, Switzerland  
 ☎ +41 56 484 80 80 / ☎ +41 56 484 80 99  
 info@axonlab.ch  
 www.axonlab.com



connecting ideas

--	--	--	--	--	--	--	--	--	--	--	--

**Beckman Coulter, Inc.**  
 250 S. Kramer Boulevard  
 Brea, CA 92822-8000, USA  
 ☎ +1 714 993 5321  
 cvillarreal@beckman.com  
 www.beckmancoulter.com



7 10		12 16 19 30		35					58		
---------	--	----------------------	--	----	--	--	--	--	----	--	--

**Belimed Deutschland GmbH**  
 Edisonstraße 7 a  
 84453 Mühldorf, Germany  
 ☎ +49 8631 9896 0  
 info@belimed.de  
 www.belimed.de



										65	
--	--	--	--	--	--	--	--	--	--	----	--

**Biotec-Fischer GmbH**  
 Daimlerstraße 6  
 35447 Reiskirchen, Germany  
 ☎ +49 6408 6072 / ☎ +49 6408 64165  
 info@biotec-fischer.de  
 www.biotec-fischer.de



		29									
--	--	----	--	--	--	--	--	--	--	--	--

**Bruker Daltonik GmbH**  
 Fahrenheitstr. 4  
 28359 Bremen, Germany  
 ☎ +49 421 2205 0 / ☎ +49 421 2205 305  
 sales@bdal.de  
 www.bruker.com



						46					
--	--	--	--	--	--	----	--	--	--	--	--

**COMED Computerorganisation in der Medizin GmbH**  
 Köttersweg 11  
 59494 Soest, Germany  
 ☎ +49 2921 9630 0 / ☎ +49 2921 9630 300  
 comed@comed-com.de  
 www.comed-com.de



									59		
--	--	--	--	--	--	--	--	--	----	--	--

**DRG Instruments GmbH**  
 Frauenbergstraße 18  
 35039 Marburg, Germany  
 ☎ +49 6421 1700 0 / ☎ +49 6421 1700 50  
 drg@drg-diagnostics.de  
 www.drg-diagnostics.de



		19									
--	--	----	--	--	--	--	--	--	--	--	--

**Dürr Technik GmbH & Co. KG**  
 Pleidelsheimer Straße 30  
 74321 Bietigheim-Bissingen, Germany  
 ☎ +49 7142 90 22 0 / ☎ +49 7142 90 22 99  
 office@duerr-technik.de  
 www.duerr-technik.de



										64	
--	--	--	--	--	--	--	--	--	--	----	--

**EKF Diagnostics Holdings Plc**  
 Avon House, 19 Stanwell Road  
 Penarth, Cardiff CF64 2EZ, UK  
 ☎ +44 29 20 710570 / ☎ +44 29 20 705715  
 info@ekfdiagnostics.com  
 www.ekfdiagnostics.com



		12			40			50 51 52		63	
--	--	----	--	--	----	--	--	----------------	--	----	--

**Eppendorf AG**  
 Barkhausenweg 1  
 22339 Hamburg, Germany  
 ☎ +49 40 53 801 0 / ☎ +49 40 53 801 556  
 eppendorf@eppendorf.de  
 www.eppendorf.de



		33			43					65 66	
--	--	----	--	--	----	--	--	--	--	----------	--

**Hain Lifescience GmbH**  
 Hardwiesenstraße 1  
 72147 Nehren, Germany  
 ☎ +49 74 73 94 51 0 / ☎ +49 74 73 94 51 31  
 info@hain-lifescience.de  
 www.hain-lifescience.de



					41	48					
--	--	--	--	--	----	----	--	--	--	--	--

**Andreas Hettich GmbH & Co. KG**  
 Föhrenstr. 12  
 78532 Tuttlingen, Germany  
 ☎ +49 7461 705 0  
 info@hettichlab.com  
 www.hettichlab.com



										63 65	
--	--	--	--	--	--	--	--	--	--	----------	--

**Infomed CS**  
 8 Ikarias Str.  
 12132 Athens, Greece  
 ☎ +30 210 7568 258  
 info@infomedcs.com  
 www.infomedcs.com



									56		
--	--	--	--	--	--	--	--	--	----	--	--

**iSOFT Health GmbH**  
 Exerzierplatz 14  
 68167 Mannheim, Germany  
 ☎ +49 621 3928 0  
 hg-info.deu@csc.com  
 www.isofthealth.com



									56		
--	--	--	--	--	--	--	--	--	----	--	--



# Companies / Suppliers

## PAGE INDEX

	Automation	Sample Processing	Clin. Chem./Immuno	Mass Spectrometry	Hematology	Pathology	DNA	Microbiology	POCT	IT	Non-Diagnostic	Container
<p><b>KABE LABORTECHNIK GmbH</b>                      Jägerhofstraße 17                      51588 Nümbrecht-Elsenroth, Germany                      ☎ +49 2293 596 / ☎ +49 2293 3823                      info@kabe-labortechnik.de                      www.kabe-labortechnik.de</p>												
<p><b>medat</b>                      Computer-Systeme</p>			33						50		68	67
<p><b>Medat Computersysteme GmbH</b>                      Albrechtstr. 18                      80636 München, Germany                      ☎ +49 89 126 80 80                      Vertrieb@medat.de                      www.medat.de</p>										57		
<p><b>MELOS GmbH</b>                      Franz-Beer-Str. 6                      86459 Gessertshausen, Germany                      ☎ +49 8238 96110                      info@melosgmbh.de                      www.melosgmbh.de</p>										57		
<p><b>Shenzhen Mindray Bio Medical Electronics Co., Ltd.</b>                      Mindray Building, Keji 12th Road South,                      High-tech Industrial Park, Nanshan                      Shenzhen 518057, China                      ☎ +86 755 81 888 998 / ☎ +86 755 26 58 2500                      intl-market@mindray.com · www.mindray.com</p>	10		12 23		35 36 37			48				
<p><b>Nova Biomedical Corporation</b>                      200 Prospect Street                      Waltham, MA 02454-9141, USA                      ☎ +1 781 894 0800                      info@novabio.com                      www.novabiomedical.com</p>					12 32 33				50 51 52			
<p><b>Olympus Europa SE &amp; Co. KG</b>                      Wendenstraße 14-18                      20097 Hamburg, Germany                      ☎ +49 40 237730 / ☎ +49 40 233765                      microscopy@olympus-europa.com                      www.olympus-europa.com/microscopy</p>						38		48				
<p><b>Promega GmbH</b>                      High-Tech-Park, Schildkrötstr. 15                      68199 Mannheim                      ☎ +49 621 8501 0                      ☎ +49 621 8501 222                      www.promega.com</p>							42					
<p><b>Randox Laboratories Ltd.</b>                      55 Diamond Road                      Crumlin, Co. Antrim, BT29 4QV, UK                      ☎ +44 28 9442 2413 / ☎ +44 28 9445 2912                      marketing@randox.com                      www.randox.com</p>					13 14 20					59		
<p><b>F. Hoffmann-La Roche AG</b>                      Grenzachstraße 124                      CH-4070 Basel, Schweiz                      ☎ +41 61 6881111                      www.roche.com/contact.htm                      www.cobas.com/home/contact.html</p>	10	6 7	20 24 31		36 37		40 41 42		51 52 53	58 59		
<p><b>SARSTEDT AG &amp; Co.</b>                      Sarstedtstr. 1                      51588 Nümbrecht, Germany                      ☎ +49 2293 305 0 / ☎ +49 2293 305 122                      info@sarstedt.com                      www.sarstedt.com</p>		6 7	22 32		36	38	40 43		53		67 68 69	67 68
<p><b>Shenzhen New Industries Biomedical Engineering Co., Ltd.</b>                      3/F, Block A, Majialong Culture &amp; Sports Center,                      No. 200 Yiyuan Road,                      nanshan District, Shenzhen 518052, China                      ☎ +86 755 2650 1514 9 / ☎ +86 755 2665 4850                      sales@snibe.com · www.snibe.com</p>												
<p><b>Shimadzu Europa GmbH</b>                      Albert-Hahn-Str. 6-10                      47269 Duisburg, Germany                      ☎ +49 203 7687 0 / ☎ +49 203 7687 400                      shimadzu@shimadzu.eu                      www.shimadzu.eu</p>					30	28 29		40	46			
<p><b>Sigma Laborzentrifugen GmbH</b>                      An der Unteren Söse 50                      37520 Osterode, Germany                      ☎ +49 55 22 50 07 0 / ☎ +49 55 22 50 07 12                      info@sigma-zentrifugen.de                      www.sigma-zentrifugen.de</p>											63 64	
<p><b>Thermo Fisher Scientific</b>                      355 River Oaks Parkway                      San Jose, CA 95134                      ☎ +1 408 965 6022 / ☎ +1 408 965 6150                      analyze@thermofisher.com                      www.thermoscientific.com</p>					28 30							
<p><b>Tokyo Boeki Machinery Ltd., Medical Instruments Division</b>                      2-13-8 Hatchobori, Chuo-ku,                      Tokyo 104-8510, Japan                      ☎ +81 3 3555 7357 / ☎ +81 3 3555 7367                      info-medical@tokyo-boeki.co.jp                      www.tokyo-boeki-machinery.jp</p>					14 22					38		
<p><b>Zenon GmbH</b>                      Hüttenstr. 3                      44795 Bochum, Germany                      ☎ +49 234 94 30 535 / ☎ +49 234 94 30 536                      info@zenon-net.de                      www.docdb.de</p>											60	

# The Reference Institute for Bioanalytics

External quality control at the highest level

[www.rfb.bio](http://www.rfb.bio)



**OUR MISSION** is the performance of proficiency tests in accordance with the guidelines of the German Medical Association for quality assurance of laboratory medical investigation

## KEY FACTS

- RfB is accredited in accordance with DIN ISO 17043 and DIN ISO 17025
- Proficiency tests for all parts of the RiliBÄK (B1-B5)
- Development of more than 30 reference methods
- 30 years experience with EQAs
- More than 110.000 participations in 2014
- Customers from 76 countries



NEW: For samples  
up to 5,0 mL



# The Missing Link

## Eppendorf Tubes® 5.0 mL

Now you have a perfect option for the convenient and safe processing of sample volumes up to 5.0 mL!

With the conical design and optimized system adapters the Eppendorf Tube 5.0 mL is designed to match all common lab procedures.

- > Comprehensive line of matching accessories for centrifugation, incubation, mixing, and storage of samples
- > Ergonomic single-hand operation
- > Centrifugation up to 25.000 × g for fast protocols
- > Batch tested quality you can rely on



[www.eppendorf.com/5ml](http://www.eppendorf.com/5ml)