

Automated Haematology Analysers

# XR-Series

## Haematology Redefined



Together for a better  
healthcare journey

The XR-Series is Sysmex's new flagship product line for laboratory haematology. It draws on XN's legacy by incorporating the many strong points that customers have come to appreciate and rely on in labs across the globe. Tailoring your haematology remains at forefront of Sysmex's commitment to deliver new value assets and improved throughput, to achieve the best performance for any laboratory.



*Good to know...*  
*XR-Series is here*



# Haematology Redefined

- By adopting proven state-of-the-art fluorescence flow cytometry, the new XR-Series line of instrumentation offers enhanced clinical insights using expanded cellular parameters and novel algorithms at a higher throughput.
- Augmented automation is also achieved with the incorporation of innovative modules and additional functionalities aimed to deliver increased productivity and better user experience.





# Clinical Insight

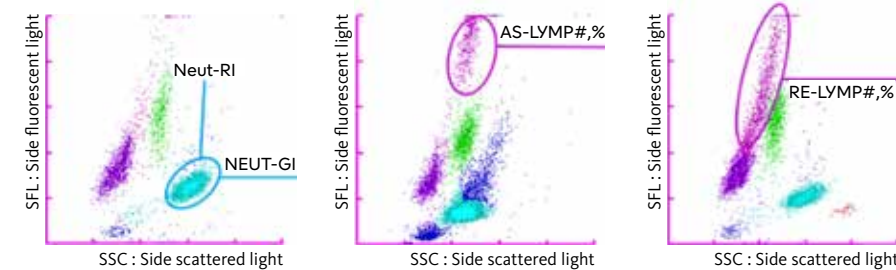
The XR-Series delivers not only seamless automation and process improvements; it further elevates the lab's diagnostic capability with more clinical parameters of proven value to both the patients and clinical stakeholders. The wider application of advanced clinical parameters (ACP) and extended inflammation parameters (EIP) provide considerable clinical insight that goes beyond the scope of conventional CBC testing.



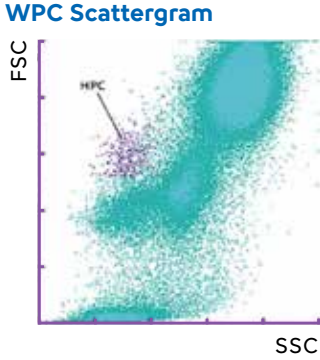
# Wider Application

The CBC and DIFF Channels provide NRBC and IG in every count. Together with the WPC channel, the XR provides further differentiation between suspect malignant and reactive samples, allowing deeper insight into the immune response status of a patient. With the optional stem cell (HPC) mode, highly correlated with the CD34 by conventional flow cytometry analysis, the HPC parameter allows for simple and rapid monitoring of stem cell mobilisation without the need for an expensive and tedious process. Collectively, these channels further promote efficient diagnostic workflow and TAT reduction.

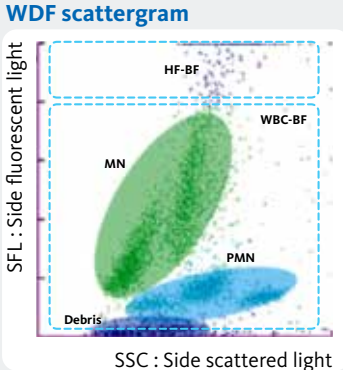
# Value Beyond Convention



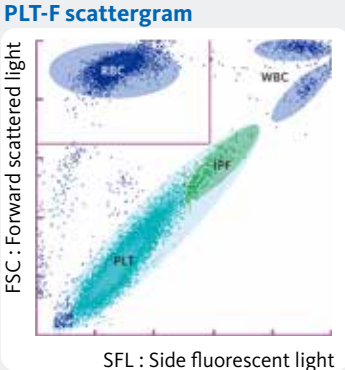
- The WDF channel boasts enhanced functionality with the availability of optional markers of inflammation (EIP) such as RE-LYMP, AS-LYMP, NEUT-GI and NEUT-RI. This permits for a comprehensive assessment of cellular responses to differentiate early and advanced stages of bacterial infections.



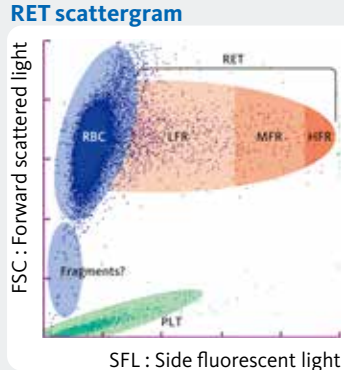
- The Body Fluid (BF) mode offers a simple, fast and standardised body fluid measurement at any time without the need for sample pretreatment or additional reagents. It is suitable for cerebrospinal, serous and synovial fluids, as well as CAPD.
- The two-part differentiation of white blood cells into mononuclear (MN) and polymorphonuclear (PMN) cell populations facilitate a quick distinction between viral and bacterial infections.



- With platelet-specific dye, the PLT-F channel is designed to provide highly accurate and precise platelet count, even in thrombocytopenic or problematic samples.
- Additional parameters such as the Immature platelet fraction (IPF) offers insight into the thrombopoietic status of the patient's bone marrow



- The Retic channel accurately counts and assesses the reticulocytes based on its nucleic acid content and haemoglobinisation- providing a complete picture in anaemia diagnosis.
- Available in every Retic run, RET-He standardization (Reticulocyte Haemoglobin Equivalent) supports the differentiation of classical from functional form of iron deficiency and helps in effective treatment decision and monitoring



# Enhanced Cell Differentiation, Better Visualisation

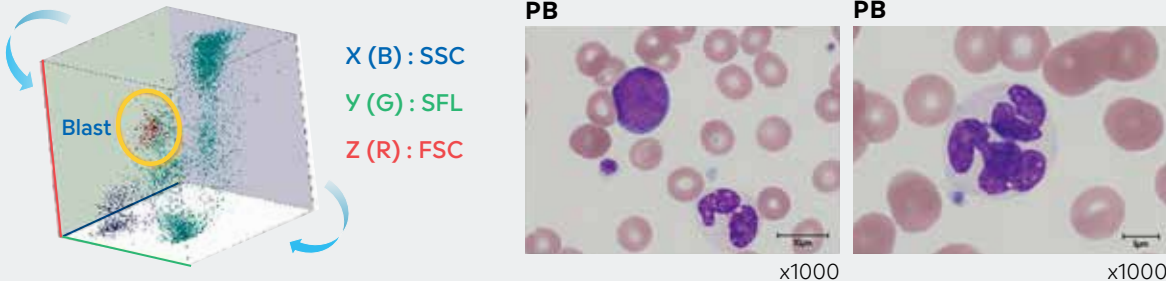
With enhanced reagent formulation and multidimensional differential analysis (3D) display of cell clusters, the XR-Series affords better visualisation and facilitates enhanced identification of cell clusters with much ease and visibility. This is especially beneficial in labs handling many samples of low WBC count.

## A Case of MDS with excess blasts

- PBF count : ~ 20% blast
- XR count: ~ 21% IG + Blast Flag

### 3D Scattergram (WPC)

The rotatable 3D scattergram of the WPC channel clearly shows a cluster of abnormal cells (blast) in the high FSC area verified under microscopy as blasts. Dysplastic neutrophils (hypogranularity and abnormal nuclear lobulation) were characteristically present in the PBF.

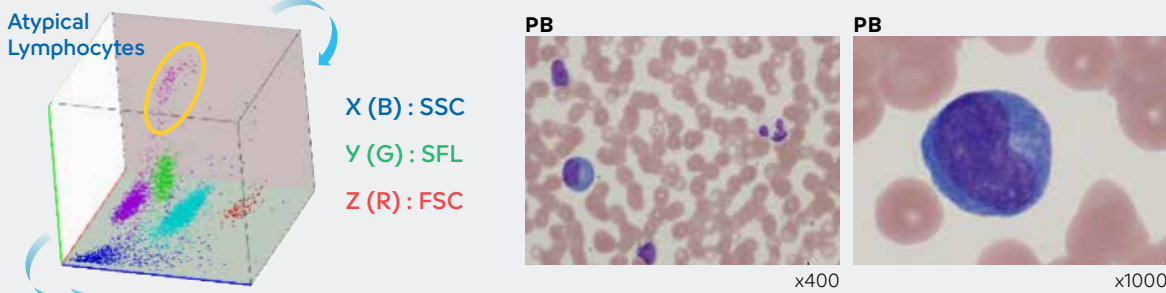


## A Case of Atypical Lymphocytes in COVID-19

- PBF count: 3% Atypical lymphocytes
- XR count: 2.8% Antibody synthesising lymphocytes (AS-Lymp)

### 3D Scattergram (WDF)

The 3D scattergram of the WDF channel shows a cluster of lymphocytes extending towards the high fluorescent intensity area which correspond to presence of lymphocytes with highly basophilic cytoplasm in the PBF.

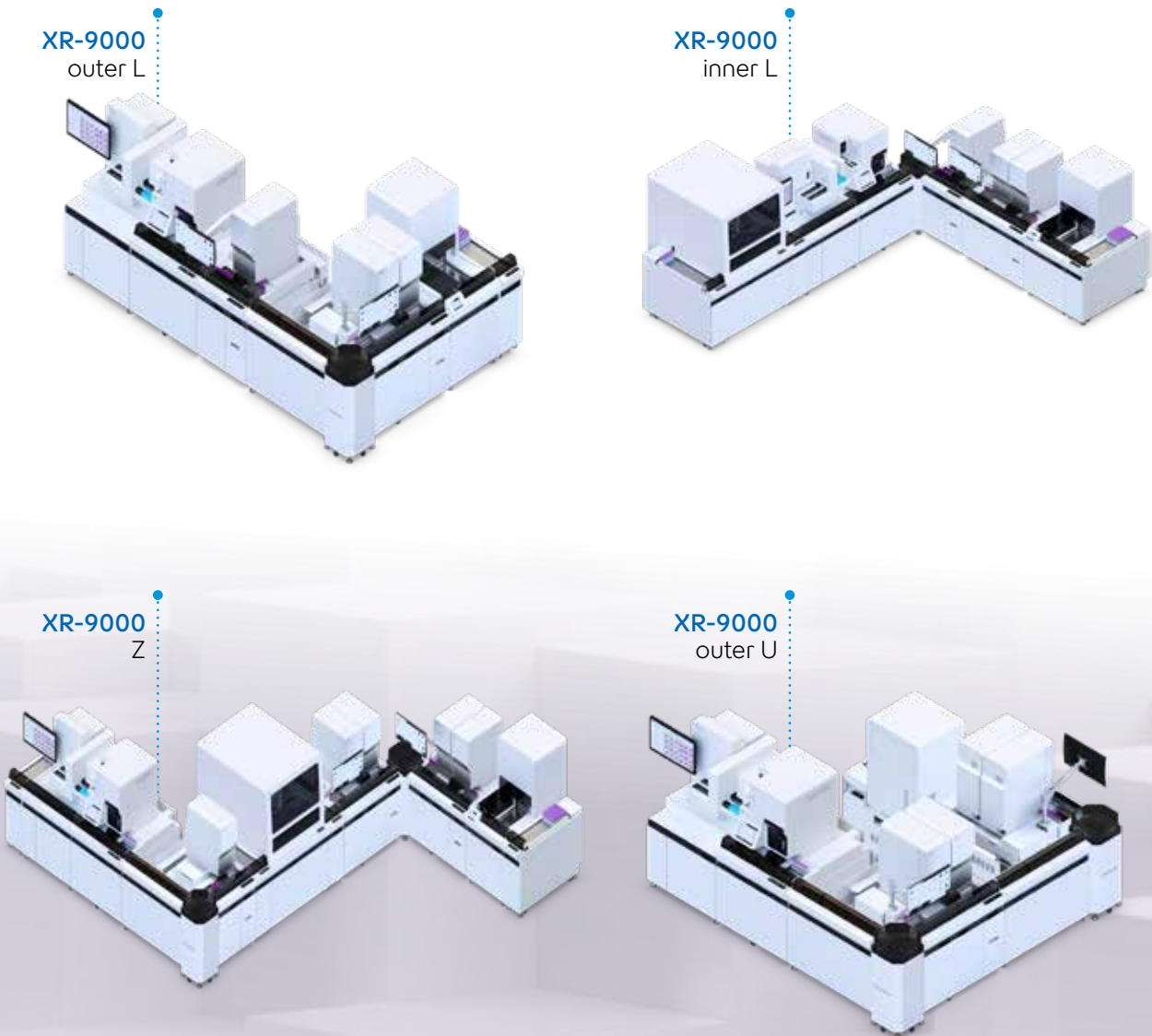


\*Case reports adapted from Sysmex XR WB clinical case report



# Automation at its best

Optimised and timesaving workflows, increased productivity and improved TAT are the promises of the XR-Series of scalable automation. With a highly customisable, configurable, and integratable range of analytical and peripheral modules, the XR-Series is more than ready to meet the ever-changing needs and demands of the lab, regardless of size and complexity.



- With flexible configuration, the lab has now the opportunity to own a complete haematology automation even in a limited space.

Up to 24 analytical module is possible.

**XR-1000**

The XR-1000 is a fully scalable, single-unit haematology analyser, ideal for taking the first step into automation. Turnaround times is kept quick by minimising manual work steps and performing extended measurements only when they offer additional analytical value.

**XR-1500**

The XR-1500 is a reliable solution for automating your smear-making and staining processes, thereby decreasing turnaround time and manual errors. You save time and resources thanks to advanced technology and flagging that reduces the need for smears, while onboard rulesets automate their processing. With the integral SP-50 available in two throughput versions, you can select the one that best fits to your lab's smear rate.

**XR-2000**

The XR-2000 is a fully scalable, double-unit standalone haematology analyser that combines two analysis modules that process samples simultaneously. The two modules cooperate to distribute work efficiently, including reflex measurements, making the XR-2000 a great solution for basic and extended haematology testing.

**XR-3000**

The XR-3000 includes two XR analysis modules and the SP-50, automatically transferring samples requiring a smear review. The two modules offer peace of mind in daily routines thanks to the built-in back-up solution, ensuring quick turnaround times.

The XR-1500 and XR-3000 feature an integral SP-50, a high-quality, fully integrated slide preparation unit. The SP-50 comes with different throughput options –allowing you to define settings for sample volume, speed and angle of the spreader blade. Auto-adapted to the HCT value of each blood sample, the length of the smear ensures a wide monolayer area for performing the blood cell differential count. Whether built into your analyser or added later, you will be impressed by the consistent high quality of your smears and stains with the SP-50.

**SP-50**

**DI-60**

The optional automated DI-60 module provides high-resolution, digitalized images of the three cell lines using artificial neural network (ANN) technology . It automatically locates, pre-classifies (WBC) and pre-characterizes (RBC) cells with excellent accuracy. Equipped with different software applications, the DI-60 offers objective and standardised method of cell identification in a rapid way resulting to higher productivity.

# for a worry-free, walk-away standardised laboratory workflow

The introduction of pioneering components, such as the BT-50 for a true walk-away QC handling and management, guarantees a positive user experience to the next level. With the compact Tube Sorter (TS-01) and Tube Archival (TA-01), a busy laboratory can enjoy heightened automation for optimised lab operations The Tube Sorter (TS-10) is an alternative solution that combines both sorting and archival function, ensuring all post-analytical needs are addressed, whether for EDTA sample tube storage or sorting for additional test investigation such as ESR or HbA1c\*.



- Benefits:**
- Reduced manual efforts for QC with automated QC material storage, preparation, and optimised mixing procedures.
  - Eliminates waste in process by scheduled start-up and automated QC handling.
  - Enables higher level of automation to support staff shortages.

- Benefits:**
- Tube sorting and archival system (2-in-1 system)
  - Standardise and optimises complex sample workflows
  - One system for different workloads {500 -1000 sample tubes/hr)
  - Liberate lab techs from time-intensive manual scanning tasks



The compact TA-01 and TS-01 offers split functionality of samples archival and sorting. The tube archival (TA-01) module will appeal to customers with limited space but in need of archival function. The TS-01 will best suit customers with connectivity requirements for 3rd party EDTA testing (i.e., ESR, HbA1c)\*.

- TS-01 / TA-01 Benefits:**
- Increased efficiency with highly customisable and automated post-analytical processing of EDTA tubes for further test or storage
  - Hands-free sorting and archiving
  - Compact and affordable solution

\* Selected model and countries. Please contact your local Sysmex representatives for more information.

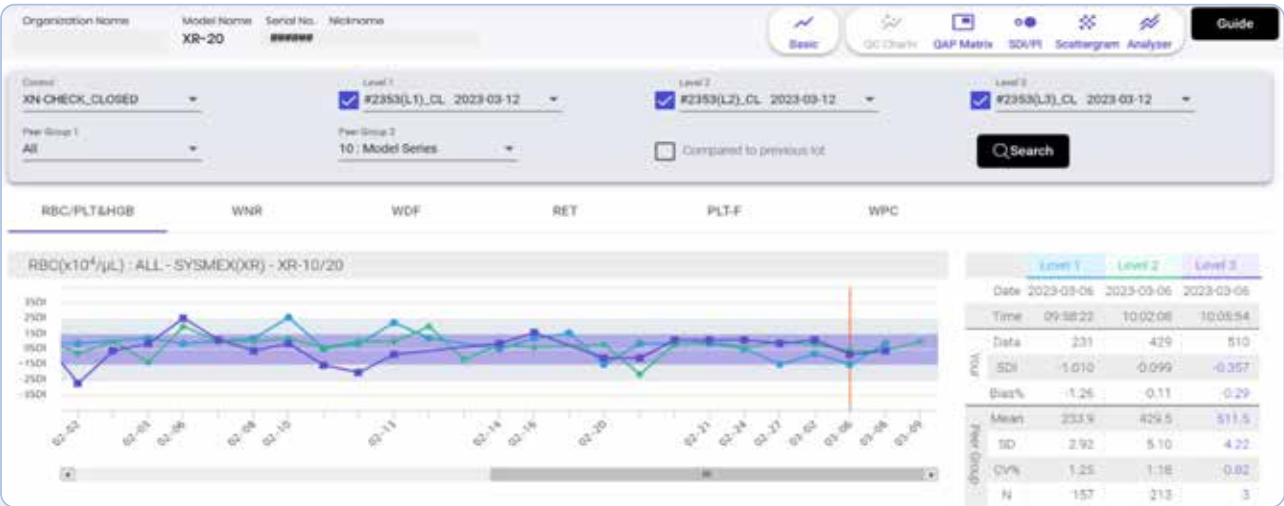


# Laboratory's Performance to the Next Level

With thoughtful innovation, the XR-Series highly intuitive software provides added value to the lab that seeks more effective and labour-saving processes while promoting better patient care and diagnostic management practices.

## Caresphere XQC

With the XR-Series, smart QC management goes beyond automation. The Caresphere XQC, a revolutionary Sysmex digital platform and inter-laboratory QC tool, supports real-time quality assessment of laboratory QC data with a large peer group at a global scale. Not only does this online tool promotes the lab's quality assurance but also build the confidence in meeting regulatory requirements.



## HCLAB WAM

The HCLAB Work Area Manager (WAM), affords full utilization of XR's capability using advanced rule-based decision support technology. It provides a dynamic platform to create a system of highly customisable onboard rule set that promote efficient workflow and higher productivity. (e.g., CBC-O to resolve problems caused by interferences such as caused by cold agglutinins). Enhancing sample and data process management through HCLAB WAM, promotes TAT improvement and ensure an efficient use of the lab staff's time.



## Concentrated Reagent System



**RU-20:**  
Reagent Preparation Unit

The RU-20 ensures uninterrupted lab operations by minimising the frequency of reagent change. It functions by automatically diluting the concentrated Cellpack DST to provide a constant supply of diluent to the XR and SP modules, all for greater convenience and improved workflow.

**Improved Turnaround-Time (TAT)** by reducing Reagent Replacement Frequency by 25 times.



*... and more.*

Continuously advancing, the XR-series provides a range of scalable fit-for-purpose haematology solutions regardless of the laboratory needs and demands.

Automated back-up function

Scheduled start-up

Automated shutdown

Cell population enhancing reagent

3D Scattergram



Convenient



Faster



Intuitive



Efficient



Scalable

# Great for your lab, great for patients

At Sysmex, the patients' well-being is the driving purpose behind our advancement of healthcare. XR-Series delivers high-quality diagnostic support in the shortest possible time through an optimised workflow, which supports not only the laboratory staff but also the clinicians treating their patients.





# KEY SPECIFICATIONS

## NOTES:

Principle	Fluorescence Flow Cytometry Hydrodynamically-focused DC Detection Method Cyanide-free SLS Hgb Method
Analysis Mode	Whole Blood Mode L-WBC Mode Pre-dilution Mode Body Fluid Mode HPC Mode
Throughput	CBC/ CBC+DIFF: 110 samples/ hr (XR-1000) CBC/ CBC+DIFF: 220 samples/ hr (XR-2000)
Sample Aspiration volume	Whole Blood: 88uL Body Fluids: 88uL PD mode: 70 ul*
Reportable Parameters	<b>Standard (30):</b> WBC, NRBC#, NRBC%, RBC, HGB, HCT, MCV, MCH, MCHC, RDW-SD, RDW-CV, MicroR%, MacroR%, PLT-I, PDW, MPV, PCT, P-LCR, NEUT#, NEUT%, LYMPH#, LYMPH%, MONO#, MONO%, EO#, EO%, BASO#, BASO#, IG#, IG%,  <b>Optional (17):</b> RET#, RET%, IRF, LFR, MFR, HFR, RET-He, RBC-He, Delta-He, HYPO-He%, HYPER- He%, PLT-O, PLT-F, IPF, IPF#, HPC#/%  <b>Extended Inflammation Parameters -EIP (6) <sup>Δ</sup></b> NEUT-GI, NEUT-RI, RE-LYMP%, RE-LYMP#, AS-LYMP%, AS-LYMP#
Body Fluid Analysis	CSF, Serous, Synovial, CAPD
Data storage Capacity	
Samples stored:	• 100,000 results (incl. histograms and scattergram)
Patient information:	• 10,000 records
Analysis registration:	• 2,000 records
Quality Control	• Tri-level QC material for all parameters • Bi-level Body Fluid QC materials
X-bar or L-J	• 300 plots x 94 files (L-J)
Xbar M	• 300 plots x 5 files (XbarM)
Quality Control files	• 99 files (300 plots per file)
Linearity	
WBC	0.00 - 440.00 x 10 <sup>3</sup> /μL
RBC	0.00 - 8.60 x 10 <sup>6</sup> /μL
HGB	0.0 - 26.00 g/dL (0.0 - 16.14 mmol/L)
HCT	0.0 - 75.0%
PLT	0 - 5000 x 10 <sup>3</sup> /μL
NRBC#	0.0 - 20.0 x 10 <sup>3</sup> /μL
NRBC%	0.0 - 600.0 / 100 WBC
RET%	0.00 - 30.00%
RET#	0.0000 - 0.7200 x10 <sup>6</sup> /μL

\* Dilution of 20 μL of whole blood with 120 μL of CELLPACK DCL (7-time dilution)  
<sup>Δ</sup> By license activation. Not approved in all markets.



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