



SIEMENS

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Break through the routine with PSI technology

Sysmex CS-5100 Hemostasis System

Answers for life.

Break through the routine with Preanalytical Sample Integrity (PSI) checks

for accurate diagnosis



Preanalytical errors and unsuitable samples account for up to 70% of lab errors¹

- Underfilling of sample tubes may cause significant sample dilution and provide falsely prolonged clotting times²
- Hemolytic specimens are the leading cause of preanalytical variability and have been shown to negatively affect medical care³
- Icteric specimens cannot be reliably identified by visual inspection alone, requiring photometric detection instead¹
- Lipemic specimens have been shown to affect the activity levels of clotting factors²



Break through routine levels of performance with the Sysmex CS-5100 System

for faster diagnosis and monitoring



Integrated PSI™ checks address preanalytical sample management

Using simultaneous, multi-wavelength Preanalytical Sample Integrity (PSI) checks to identify and manage unsuitable test specimens prior to analysis, the Sysmex® CS-5100 System* helps high-volume laboratories manage these errors and deliver high-quality results on the first test run.



The Sysmex CS-5100 System delivers advanced diagnostic workstation capabilities

- SPEED
- SECURITY
- CAPACITY
- CONSISTENCY
- CONNECTIVITY

*Not available for sale in the U.S.

“High throughput and improved workflow [are] delivered with a high level of precision.”⁴

Woolley A, Kitchen S. Sheffield Teaching Hospitals, UK. NHS Foundation Trust.

Break through sample management challenges with PSI technology

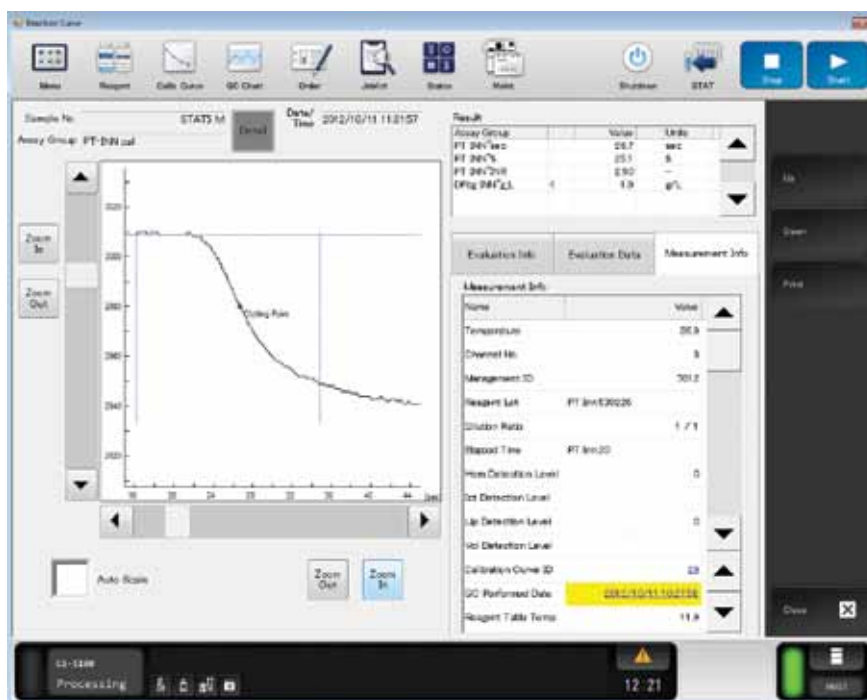
for minimizing preanalytical concerns



PSI checks boost lab quality and efficiency

The Sysmex CS-5100 System helps high-volume labs achieve first-run accuracy by identifying and automatically managing potentially problematic test samples prior to analysis—minimizing the need for manual sample inspections and maximizing operator support. The system automates and standardizes sample management for reliable results.

- Automates primary tube sample volume checks to identify potential inaccuracies caused by improper sample collection
 - Sample results from collection tubes with improper sample volume are flagged for review and recording purposes
- Qualitative detection of hemolysis, icterus, and lipemia (HIL) with a preanalytic scan of the patient sample performed at 3 wavelengths: 405 nm, 575 nm, and 660 nm



Sample result details with reaction curve.

“Photo-optical clot detection provides multiple advantages over mechanical detection systems.”⁵

Bai B, et al. Blood Coagulation Fibrinolysis. 2008;19:569-576.

Harness the power of multi-wavelength analysis

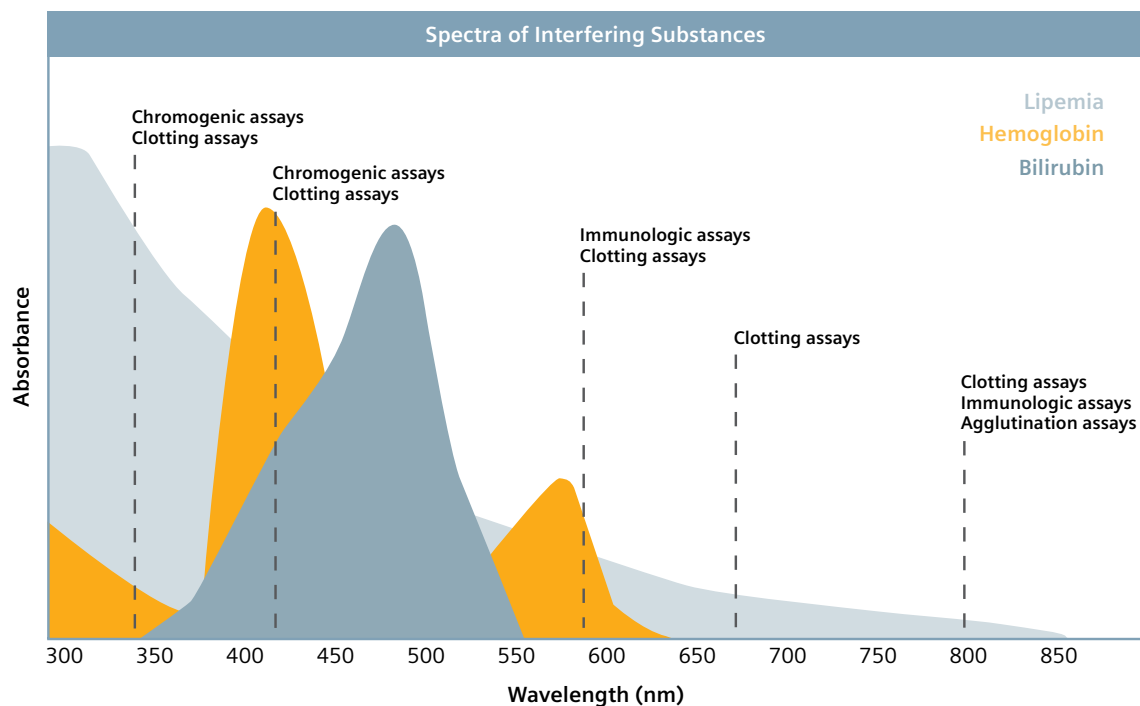
for accurate diagnosis



Simultaneous scanning of clotting reactions

The Sysmex CS-5100 System's wide optical spectrum provides 4 different measurement principles allowing clotting, chromogenic, immunologic, and aggregation/agglutination testing capabilities on a single, high-volume platform.

- Simultaneous multi-wavelength scanning of clotting reactions at 340 nm, 405 nm, 575 nm, 660 nm, and 800 nm in all detector channels
 - Reduces effects of interfering substances on absorbance spectra by automatically selecting optimal wavelengths
 - 20 reaction detectors enable high-throughput capacity for a variety of test profiles



Simultaneous multi-wavelength scanning of clotting reactions help manage interfering substances.

Break through the routine with powerful, high-capacity performance that improves lab productivity



Multidisciplinary connectivity with Siemens automation and data management solutions consolidates workflow†

- ADVIA® LabCell® Automation System
- Aptio™ Automation System
 - Automatic PSI checks bring extra confidence to track automation sample handling
 - Point-in-space sample transfer design
- ADVIA CentraLink® Data Management System



High sample-processing throughput with fast TAT facilitates quicker diagnosis and monitoring

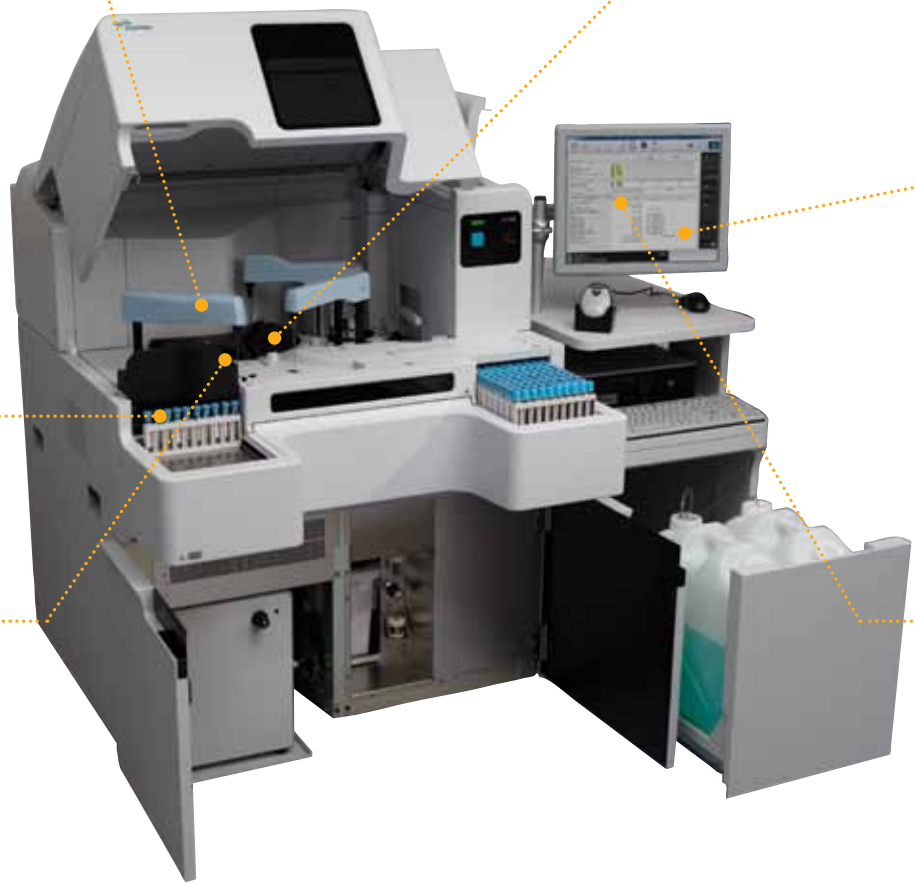
- Up to 400 tests per hour for PT/APTT‡
- Third-generation cap-piercing technology maintains throughput, regardless of open, capped, or mixed samples
- Full random access with broad test menu, including specialty and agglutination test capabilities
- Priority loading and testing of STAT samples at any time



Preanalytical Sample Integrity (PSI) checks help reduce preanalytical errors to minimize lab concerns

- Primary tube sample volume check identifies potential inaccuracies caused by improper sample collection
- User-defined criteria to detect and manage hemolysis, icterus, and lipemia (HIL)
- Simultaneous multi-wavelength analytical scanning to detect and manage unsuitable samples

The Sysmex CS-5100 System



Extended walkaway time streamlines workflow

- Onboard capacity of up to 3,000 tests[§] with up to 40 reagents
- More than 11 hours of continuous walkaway time and maximum of approximately 5 hours with cuvette supply[¶]
- Primary tubes, pediatric tubes, and sample cups on the same rack
- Refrigerated reagent chamber at approximately 10°C for extended onboard reagent stability



Consistency of results optimizes use across multi-site labs

- Result correlation with the Sysmex CS and CA family of hemostasis systems
- Same reagents, consumables^{||}, controls, calibrators, and assay reference ranges simplify purchases for multi-site labs
- Similar user software minimizes training requirements for multi-site users



Intuitive user interface with detailed sample traceability for greater confidence

- Thorough traceability of sample results with easy-to-use audit trails provides greater clinical insight
- Detailed sample result reporting, with data storage for up to 60 results per sample for 10,000 samples
 - Includes operator ID, time, and date stamps; calibration curve and measurement result information; operation and error logs; maintenance and QC history; and automatic backup and data storage

Measurement Info	
Name	Value
Temperature	37.2
Channel No.	2
Management ID	7012
Reagent Lot	PT Sen538221
Dilution Ratio	1 / 1
Elapsed Time	PT Sen3
Hem Detection Level	5
Scr Detection Level	5
Lip Detection Level	5
Vol Detection Level	47.6
Calibration Curve ID	11
QC Performed Date	2012/10/10 11:47:19
Reagent Table Temp	9.9

†The product is still under development and not yet commercially available. Its future availability cannot be ensured.

‡Throughput values were determined by the time to first result; processing capability varies depending on the reagent used. Stated throughput value was determined using Siemens' study protocol with PT (Thromborel® S Reagent), APTT (Pathromtin® SL Reagent), INNOVANCE® D-Dimer Reagent, and AT (INNOVANCE AT Reagent) test applications.

§3,000-test capacity for PT testing; 2,880-test capacity for APTT testing; 2,880-test capacity for PT/APTT testing; 2,840-test capacity for PT/APTT/Fbg testing; 2,436-test capacity for PT/APTT/AT3 testing; and 1,890-test capacity for PT/APTT/AT3/DD testing.[¶]

^{||}Excludes Sysmex CA Systems consumables.

The Sysmex CS-5100 System delivers advanced diagnostic workstation capabilities

- » SPEED
- » SECURITY
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Break through workflow limitations with streamlined productivity

for profit-driven lab management



High sample-processing throughput is optimized with full random access[‡]

- Up to 400 PT tests/hour
- Up to 400 PT/APTT tests/hour
- More than 300 PT/APTT/D-Dimer/Antithrombin tests/hour

Large reagent, sample, and consumable capacity helps streamline workflow

- Up to 3,000 tests onboard,[§] with up to 100 patient samples per run
- Refrigerated reagent chamber maximizes onboard reagent stability at approximately 10°C
- Tilted reagent vial-sampling angle provides greater usable reagent volume
- Intelligent, simultaneous processing of primary and pediatric samples for increased productivity

User-defined aggregation/agglutination test capabilities for a broader test menu

- Provides an additional measurement principle while delivering workstation consolidation

Advanced reagent management helps maintain uninterrupted workflow

- Load up to 40 reagents on the reagent table
- Load up to 5 buffer vials on the buffer rack
- Two-dimensional barcode input of TAV for standards, calibrators, controls, and reagents ensures accurate transfer of ISI and nominal values
- Automatic QC run with change of reagent vial and at user-defined time intervals

Includes advanced cap-piercing technology

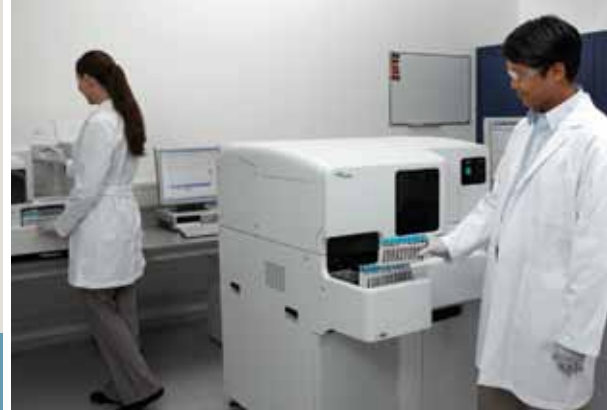
- Proven high throughput with both capped and open vial samples⁷
- Reduces sample processing time under all conditions
- Enhances operator safety by reducing risk of exposure to biohazardous materials

Test menu with broad capabilities increases lab consolidation

Measurement Principle	Assays	Wavelengths (nm)
Clotting	PT, APTT, Fbg, TT, Intrinsic & Extrinsic Factor Assays, Protein S Activity, Free Protein S Antigen, Protein C Clotting, Lupus Screening and Confirmation, Activated Protein C	340, 405, 575, 660, 800
Chromogenic	Factor VIII, Factor XIII, Heparin, Antithrombin, α2 Antiplasmin, Protein C, Plasminogen, C1 Inhibitor	340, 405
Immunologic	D-Dimer, vWF Antigen, vWF Activity	575, 800
Aggregation/Agglutination	Ristocetin Co-Factor	800

The Sysmex CS family of systems—true consistency and compatibility

for advanced patient care

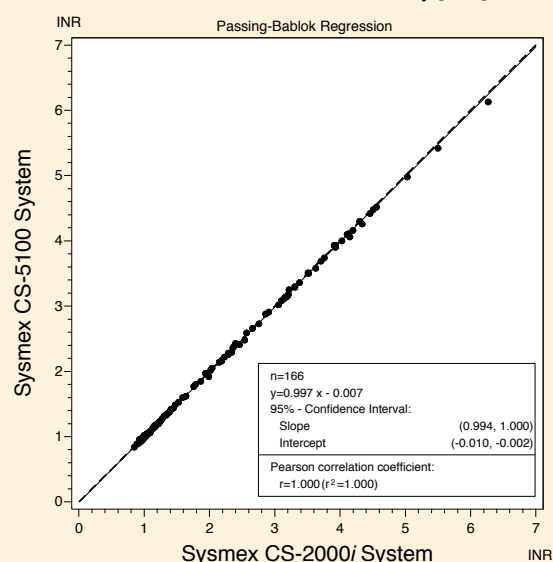


Facilitates monitoring within and between labs

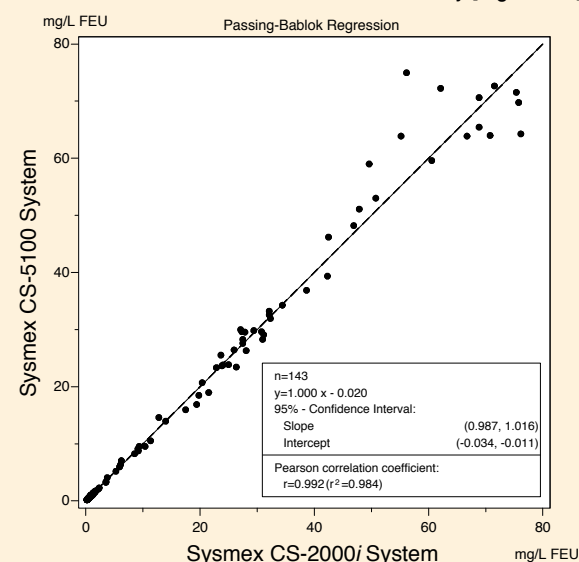
- Excellent correlation values with the Sysmex CS-2000i and CS-2100i Systems
- Lab-to-lab consistency for confident patient monitoring
- Same reference ranges, assay applications, reagents, consumables, software, and QC
- Compact footprint comparable to the Sysmex CS-2000i and CS-2100i Systems

Excellent correlation of results across the Sysmex CS family of systems

Evaluation of Sysmex CS-5100 System / Site: Internal PT with Dade® Innovin® Assay [INR]



Evaluation of Sysmex CS-5100 System / Site: Internal D-Dimer with INNOVANCE® D-Dimer Assay [mg/L FEU]



*Throughput values were determined by the time to first result; processing capability varies depending on the reagent used. Stated throughput values were determined using Siemens' study protocol with PT (Thromborel S Reagent), APTT (Pathromtin SL Reagent), INNOVANCE D-Dimer Reagent, and AT (INNOVANCE AT Reagent) test applications.

§3,000-test capacity for PT testing; 2,880-test capacity for APTT testing; 2,880-test capacity for PT/APTT testing; 2,840-test capacity for PT/APTT/Fbg testing; 2,436-test capacity for PT/APTT/AT3 testing; and 1,890-test capacity for PT/APTT/AT3/DD testing.⁶

Break through complex operations with sophisticated system software

for increased walkaway time



The Sysmex CS-5100 System shares powerful, user-friendly Sysmex CS family software—providing a dynamic, customizable user environment

- Windows®7-based software provides a user-friendly interface easily customizable to lab requirements
- Software-supported error management and troubleshooting
- Automatic validation of results with bi-directional LIS connectivity

Real-time reagent and consumables monitoring facilitates ease of use and workflow efficiency

- Provides complete, easy-to-understand onboard reagent status information with supporting graphics and data
- Displays large and intuitive status symbols
- Identifies and resolves issues with clear status messages



References

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2. Favaloro E, Lippi G, Adcock D. Preanalytical and postanalytical variables: the leading causes of diagnostic error in hemostasis? Semin Thromb Hemost. 2008;34:612-634.
3. Lippi G, Blanckaert N, Bonini P, et al. Haemolysis: an overview of the leading cause of unsuitable specimens in clinical laboratories. Clin Chem Lab Med. 2008;46(6):764-772.
4. Woolley A, Kitchen S (Sheffield Teaching Hospitals, UK). Assessment of throughput/workflow of routine coagulation testing using the high throughput coagulation analyser — Sysmex® CS-5100. Poster. NHS Foundation Trust.
5. Bai B, Christie DJ, Gorman RT, Wu JR. Comparison of optical and mechanical clot detection for routine coagulation testing in a large volume clinical laboratory. Blood Coagul Fibrinolysis. 2008 Sep;19(6):569-576.
6. Based on internal validation data from Sysmex Corporation.
7. Lawrie A, Iseppi J, Mackie I, Machin S. Evaluation of a high throughput multi-wavelength blood coagulation analyser — Sysmex CS-5100. Sysmex J Int. 2011;21(1):1-9.

Break through routine performance with powerful connectivity

for improved workflow



The Sysmex CS-5100 System offers flexible, multidisciplinary connectivity to Siemens automation solutions[†]:

- ADVIA LabCell Automation System
- Aptio Automation System
- ADVIA Centralink Data Management System

Scalable, confident automation

- Integrated PSI checks reduce manual intervention during track-automated analysis
- Point-in-space sample transfer with manual backup sample-loading options
- Compatible Siemens coagulation, immunoassay, chemistry, and hematology systems enable scalable automation connectivity

Sysmex CS and CA family of analyzers



Sysmex CS-5100 System

High-volume, fully automated solution featuring PSI technology, full automation connectivity options, and third-generation cap-piercing technology



Sysmex CS-2000i & 2100i Systems

Unique, mid-volume solutions, featuring PSI technology and optional advanced third-generation cap-piercing technology



Sysmex CA-600 Systems

Compact, fully automated coagulation analyzers that offer a variety of configurations for clotting, chromogenic[‡], and immunologic[¶] methods



Sysmex CA-1500 System

Fully automated clotting, chromogenic, and immunological testing performance with optional second-generation cap-piercing technology in a compact, mid-volume solution

[†]The product is still under development and not yet commercially available. Its future availability cannot be ensured.

[‡]Offered on the Sysmex CA-660 System only.

For more information on how the Sysmex CS-5100 System and the CS family of systems can help your lab break through routine levels of performance, please contact your local Siemens representative.

Siemens Healthcare Diagnostics, a global leader in clinical diagnostics, provides healthcare professionals in hospital, reference, and physician office laboratories and point-of-care settings with the vital information required to accurately diagnose, treat, and monitor patients. Our innovative portfolio of performance-driven solutions and personalized customer care combine to streamline workflow, enhance operational efficiency, and support improved patient outcomes.

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Order No. A91DX-HHS-121269-XC1-4A00
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