

NEWS

ADVANCES IN PLATFLET ANALYSIS

CEO Message

Most of us have heard of self-driving vehicles with safety automation, and fully connected smart homes that can notify you when a package is delivered or when milk is running low. But what does new technology, particularly the internet-of-things (IoT), mean for patient care? Maximizing the value, efficiency and quality of patient care is the health care industry's brass ring. This is especially true for laboratorians tasked to deliver accurate, actionable, high-quality results. Labs will continue rethinking processes and workflows in order to benefit from new technology. Sysmex will continue partnering with labs to deliver innovations to overcome their most pressing challenges in care delivery.

It is ever more apparent that the use of clinical laboratory test results in diagnostic decision-making is an integral part of clinical medicine. A 2016¹ study assessing the value of in vitro diagnostics (IVD) in medical practice found that while IVD costs account for 2.3% of total health care expenditures, 66% of physician decision making is based on IVD test results.

(Continued on page 2)

2018 Sysmex Events See Page 5.

Advances in platelet analysis on the Sysmex XN-Series analyzers offer parameters useful in assessing challenging conditions such as thrombocytopenia

The Immature Platelet Fraction (IPF%) and Immature Platelet Count (displayed as IPF#) present additional information to clinicians that can help diagnose the cause of a patient's low platelet count. The (IPF%), available on the XE-Series and XN-Series analyzers, is a direct cellular measurement that indicates platelet production in the bone marrow and can differentiate between productive and consumptive causes of thrombocytopenia. The measurement is obtained in the flow cell; platelets are considered immature when increased amounts of nucleic acid are detected, as determined by the absorbance of fluorescent stains on the analyzer. Samples presenting with a low platelet count and a low to normal IPF% indicate that the bone marrow is



not releasing platelets and a hypoproliferative disorder should be suspected. Conditions related to decreased thrombopoiesis include leukemia, aplastic anemia, and bone marrow suppression due to drug effect. Conversely, when a sample with thrombocytopenia shows an elevated IPF%, bone marrow production is confirmed and the platelets are likely being consumed peripherally. These results would lead a clinician to investigate disorders such as immune thrombocytopenic purpura (ITP), thrombotic thrombocytopenic purpura (TTP), or disseminated intravascular coagulation (DIC), among others.

XN-Series analyzers starting with v.19D software will also report the Immature Platelet Count (IPF#). This parameter expresses the absolute number of immature—or reticulated—platelets found in the sample. The Immature Platelet Count is the product of the fluorescent platelet count and the Immature Platelet Fraction. The Immature Platelet Count may be useful to clinicians when monitoring patient therapy or when making treatment decisions.

(Continued on page 3)

MESSAGE FROM THE CEO

(Continued from cover)



Ralph Taylor, CEO, Sysmex America

Although laboratory science is the medical profession that almost all working physicians rely on, lab test training is limited within the curriculum of many medical schools. This conundrum further highlights the important role laboratorians play in delivering quality care. At Sysmex, we are keenly aware of the central position labs hold within the health care system.

February 2018 will mark Sysmex's 50 year anniversary. Since 1968, Sysmex has sought to solve health care diagnostic challenges with world-class technology and proprietary R&D to expand the possibilities for delivering patient care that always prioritizes value, quality and continuous lab performance improvement. Fittingly, in 2017 Sysmex America introduced the most new products to market in a single year than ever before—17 products in 2017.

The expansion of our portfolio is an exciting prelude to our 50 year anniversary. The 17 products launched last year provide solutions to answer the industry's call for better, more-efficient performance through innovations that streamline communication, support laboratory professional development, comprehensively refine lab systems and implement better diagnostic reporting and quality monitoring to support the overall diagnostic process.

While the broadening of our product portfolio with 17 new products in 2017 is a source of satisfaction and an example of our genuine, health-focused scientific curiosity, the work I'm most proud of are the solutions that provide you the customer the clinical and operational value that make real world differences to patients. Looking ahead to 2018, partnerships with innovative companies like PTC, maker of Thingworx technology, will continue to allow us to deliver intuitive digital integrations that enhance situational awareness, track behavior, provide sensor-driven data for faster decision-making and seize new opportunities for process optimization.

Similar to our modern day reliance on mobile technology to problem solve, communicate and organize our lives, my belief is that Sysmex will bring revolutionary value and quality to your work and to patient care for another 50 years. We will continue to chart the course for greater innovation that moves beyond the procedural, though important, and to the interactive innovations that help customers like you best enact your work in the laboratory. New technology will offer unique, adaptable, holistic solutions that support testing from the moment lab orders are submitted, to delivery of clinically actionable results. We will continue to help lab professionals leverage Sysmex technology to enhance the service they provide patients every day, in 2018 and beyond a better box.

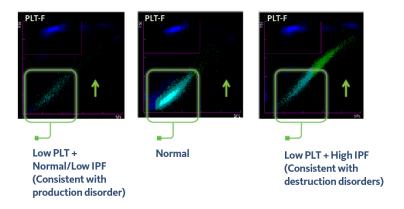
Wishing you a wonderful 2018 🐞

Sincerely, Ralph Taylor Chief Executive Officer

¹Rohr, U.-P., Binder, C., Dieterle, T., Giusti, F., Messina, C. G. M., Toerien, E., Schäfer, H. H. (2016). The Value of In Vitro Diagnostic Testing in Medical Practice: A Status Report. PLoS ONE, 11(3), e0149856. http://doi.org/10.1371/journal.pone.0149856

ADVANCES IN PLATELET ANALYSIS

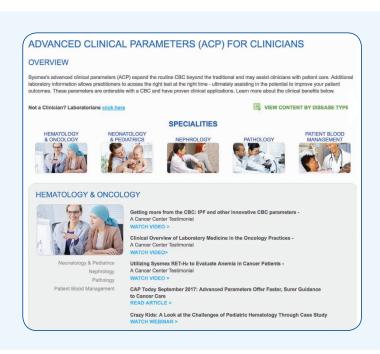
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For more information about the immature platelet parameters, please visit our new Advanced Clinical Parameter (ACP) website (see below) at www.sysmex.com/acplab. From this site, you can view related articles, watch videos discussing the clinical utility of our ACPs, or read about how other Sysmex users utilize ACPs to gain efficiency in their laboratory or clinical practice. Also, be sure to click on the "Training and Education" link to check out our upcoming Spring Webinar Series, featuring "Evaluation of Anemia and Thrombocytopenia in Neonates" on February 14 by Martha Sola-Visner, MD, of Boston Children's Hospital and Harvard Medical School. You can also register for a future event or explore our entire list of on-demand webinars, all of which offer CEUs.

We encourage you to check out our website **www.sysmex.com/acplab** and share information specific to the ACPs with your team!

- We have updated our external website to include ACP materials for both laboratorians and practitioners.
- Content is categorized according to practitioner specialty and patient disease type.
- Materials include links to recent publications, videos, white papers, customer testimonials, and more.



MEASURING THE DNA CONTENT OF PLANTS

A Departure From Clinical Cell Analysis for Sysmex!

Unlike humans, the nuclei of plants often contain large variations in the number of chromosome sets they contain (ploidy)¹. For example, human nuclei contain two sets of chromosomes (diploid), whereas potatoes contain 4 sets of chromosomes in their nuclei (tetraploid). Determining ploidy is therefore a particularly important form of analysis in plant breeding and aquaculture. Controlling the ploidy level is often essential for monitoring the outcome of breeding procedures and quality in seed and plant production. As such, accurately determining genome size and ploidy levels plays a major role in today's evolutionary biology, taxonomy and ecology. It helps to characterize and understand how species develop and the details of population structures.

Until recently, chromosomes were counted using classical light microscopy, but this has been replaced by flow cytometry, a method that is time-and cost-saving, as it provides precise results quickly with an efficient work-flow. Flow cytometry is now the gold standard the state-of-the-art method in the breeding industry and in research for determining both the ploidy level and genome size in plants, animals and microorganisms.

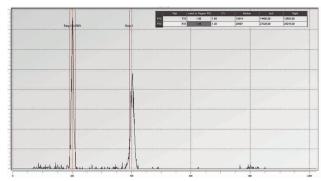
In order to visualize chromosomal DNA, cells are disrupted and the chromosomes are then stained with a fluorescent dye such as propidium iodide or DAPI stain², after which flow cytometry is used to measure the fluorescence produced by the dye, created by exciting the dye with a laser. Fluorescence data is then displayed on histograms, showing the ploidy level.



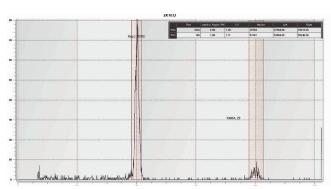
Sysmex offers a range of reagents and flow cytometry systems for ploidy analysis. If you want to learn more, view on this link https://us.sysmex-flowcytometry.com.

References

- ¹ Plant polyploidy and the evolutionary ecology of plant/animal interactions. John N. Thompson, Scott L. Nuismer, Kurt Merg. Biological Journal of the Linnean Society, Volume 82, Issue 4, 1 August 2004, Pages 511–519.
- ² Analysis of Cellular DNA Content by Flow and Laser Scanning Cytometry. Zbigniew Darzynkiewicz,* H. Dorota Halicka, and Hong Zhao. Adv Exp Med Biol. 2010; 676: 137–147.



Number of nuclei (vertical axis) and fluorescence intensity (horizontal axis) Zea mays (Maize), 2n - diploid, CyStain® DAPI staining.



Number of nuclei (vertical axis) and fluorescence intensity (horizontal axis) Zea mays (Maize), 4n - tetraploid, CyStain® DAPI staining.

SYSMEX EVENTS 2018

February 3 – 7, 2018	North American Veterinary Meeting & Expo	Orange County Convention Center Orlando, FL
February 14, 2018	Evaluation of Anemia and Thrombocytopenia in Neonates	Sysmex Webinar Noon Central Time
March 11 – 15, 2018	Society of Toxicology Expo	Henry B. Gonzalez Convention Center San Antonio, TX
April 14 – 18, 2018	American Association for Cancer Research	McCormick Place North/South Chicago, IL
May 4 – 8, 2018	Immunology 2018 Annual Convention	Austin Convention Center Austin, TX
June 1 – 5, 2018	American Society of Clinical Oncology	McCormick Place Chicago, IL
June 14 – 16, 2018	American College of Vet Internal Medicine	Washington State Convention Center Seattle, WA
July 13 – 17, 2018	American Vet Medical Association	Colorado Convention Center Denver, CO
July 29 – August 2, 2018	American Association for Clinical Chemistry (AACC) Annual Meeting	McCormick Place Chicago, IL
October 13 – 16, 2018	American Association of Blood Banks (AABB) Annual Meeting	Boston Convention Center Boston, MA
November 1 – 3, 2018	American Molecular Pathology	Henry B. Gonzalez Convention Center San Antonio, TX

SYSMEX AMERICA AND CLEARBROOK PARTNERSHIP EXTENDED

Partnership to employ people with developmental disabilities keeps reagent factory humming along



Don Marquis with Marilyn at Clearbrook's Palatine, Illinois facility.

From living accommodations and transportation, to family support and employment services, Don Marquis, director of corporate relations for Clearbook, funnels passion into the organization, whose mission is to provide innovative opportunities, services and support to people with disabilities. Specifically, Clearbrook is committed to creating innovative employment opportunities for people living with disabilities.

In 2017 Sysmex America and Clearbrook extended their

employment agreement, which provides capable job talent to the reagent factory, Sysmex Reagents America (SRA) located in Mundelein, Illinois, about 30 minutes north of Chicago.

For more than 60 years Clearbrook has served the needs of people living with disabilities and their families, providing a broad array



Stuart and Leanne greeting people at Clearbrook.

of support services that improve quality of life for families, as well as the in the communities where they work. As for employment, the nonprofit coordinates job recruitment, achievement and

skills training for a variety of work, from food service, painting and landscaping, to manufacturing production like the work completed at SRA.

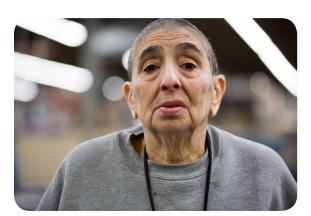
Delivering on Clearbrook's mission, Marquis' work life is devoted to attesting to the value of hiring workers with disabilities and spreading the word about the quality work they can offer. "Embracing all abilities opens opportunities for new innovations that are fruitful for companies and the people who they employ," said Marquis. Studies show that diverse teams deliver benefits to overall company culture and business success. In fact, businesses that embrace disability inclusion have found a positive correlation between profitability, employee morale and engagement. As well as finding lower turnover, better safety records, increased innovation and greater productivity among employees.



Clearbrook Job Coach, Lynette Pancratz at Sysmex Reagent America factory in Mundelein, Illinois.

Sysmex America and Clearbrook began their relationship in 2011 shortly after opening the then new SRA reagent production facility in Illinois. "We sought synergistic opportunities to hire competent employees at all skill levels, while delivering on the company mission to deliver quality products, and supporting the communities where we work—the Sysmex Way," said John Neal, Sr. Director for Sysmex Operations.

The Sysmex Way is the corporate philosophy that is a cornerstone for all Sysmex activities. It defines and guides company pursuits through its mission to shape healthcare's future, create unique and innovative value that builds trust and confidence, and the mindful demonstration of competence and teamwork. Their relationship with Clearbrook demonstrates the Sysmex Way in action by providing unique community value that also delivers valuable personnel to Sysmex.



Rochelle at Clearbrook in Palatine, Illinois facility.

"We identified opportunities in the packaging and labeling areas that were a great fit for Clearbrook facilitated employees," said Neal. "It's been a long-running and successful relationship that exemplifies the Sysmex Way and provides us quality work from highly engaged employees."

As for the day-to-day experience working with Clearbrook talent, Derwin Threats, SRA production manager and Shuji Nagai, director of manufacturing see the impact of their work daily. Threats works with coaches who provide additional direction to Clearbrook employees on-site and works to teach them the job of the day. Together they coordinate schedules, shifts and instructions for completing the work safely, efficiently and effectively. "The Clearbrook agreement allows SRA to provide

opportunities for clients to work and interact with members of the community. The interaction between SRA associates and Clearbrook clients has developed into a work relationship embracing respect and trust," said Threats. The benefits they provide the organization are clear. The connection, interaction and learning are benefits to the organization that Clearbrook employees provide.

"Everyone has something to learn, including at SRA. While differences exist, the ability to perform quality work is to be respected," said Nagai. "Though initially we had concerns about safety within the manufacturing environment, they showed and proved their success. They have a strong work ethic. Just because someone has a disability does not mean they are not completely qualified to do a variety of jobs."

Clearbrook expands opportunities for people with disabilities to contribute and develop career skills for greater independence and autonomy in their lives. The partnership is one way that Sysmex America demonstrates the Sysmex Way's directive to increase value within its communities, while simultaneously gaining the real-life business benefits of employing diverse quality talent.

For more information about Clearbrook and the myriad ways to show your support, visit

https://www.clearbrook.org. **



Clearbrook employees Michael and Adam working at SRA Mundelein factory.

WHAT'S NEW

2018 Calendar Photos

The 2018 Customer Calendar Contest is complete. This year's theme, Lab Superheroes, is a celebration of lab professionals. Thanks to all of the customers who submitted photos. Here are just a few of the submissions received.



Exeter Hospital in Exeter, New Hampshire

Teri Mullen, Suzanne Fletcher, Patricia Magdalenski, and Christine Johnson

Manatee Memorial Hospital in Bradenton, Florida

Chris Tran, Martha Sutherland, Linda Jacobs, Isobel Anderson, Laarni Sesante, Lisa Beauregard, Rita Renzelmann, Linda Mann





University Suburban Health Center Laboratory in Cleveland, Ohio

Tatiana Weaver, Clive Hamlin, Dan Ferrer, Dina Oriani, Zayra Ramos-Ortiz, Martha Adams, Rachel Woods



Stephanie Tidd, Karrie Bittner, Melanie Dykstra, Linda DeVane, Carolyne King-Kenyon





Norton Sound Health Corporation

Skyler Harbour, Hare Shah, Scharre Henry, Kyle Scott

WHAT'S NEW



Christus Santa Rosa Hospital-Westover Hills in San Antonio, TX

Tracy Holmes Brazil, Devaki Allen, Jennell Chu, Erika Davila-Morales, Leslie Esubedo, Niché Johnson, Susan Mann, Leydi K. Reyba, Hazel Jane P-Rian

St. Luke's Hospital, Anderson Campus in Easton, PA

Christine Eagle, Marie Koehler, Taina Garcia, Dilip Sheth, Casey Sousa, Jessica Smith, Danielle Roy, Julia Kester, Amber Adams, Danelle Roy





University of Ohio Hospital in Cleveland, OH

Don Landek, Amanda Zimmerman, Terri Ponchak, Christine Hoyle, Kerry Schade, Jamie Meyers, Molly Klima, Crystal Leonard, Barb Staller, Christine Dillman, Dorren Losh, Jenny Branisel

Sysmex Technology and Employee Know-How Provide Life-Saving Support with TAC

Cynthia Webb, Technical Support Specialist III for Sysmex America, only had to ask a few questions before she realized something was very wrong with the results a radiology technician was sharing during a standard customer support call. It wasn't until much later, that the caller or anyone else, would realize how dire the situation really was.

Webb received the call from the x-ray technologist to the Sysmex's Technical Assistance Center (TAC) where she provides customer technical support and troubleshoots their technical challenges. The customer, operating under the appropriate clinical supervision, was having troubles understanding test results and suspected that the sample was damaged. The customer, using the XN-1000, had difficulty reading a single sample due to aspiration and low blood volume errors.

After some routine questions Cynthia logged on to the Sysmex Network Communications System (SNCS), the networking portal that allows service teams like TAC to screen share with customers in order to deliver hands-on support remotely. Once logged on, she was able to review the customers' results directly.

While analyzing the charts she confirmed the sample was good, but noticed a very low red blood cell count. The patient, a 13 year old girl, had very low hematocrit levels, the lowest Webb had ever seen.

Based on this service call, the results were submitted to the doctor who was then able to confirm that the patient had undiagnosed leukemia. With the correct diagnosis confirmed, the doctor was able to develop, communicate and begin a plan to treat the girl. Cynthia Webb was able to become the Medical Technologist remotely and confirm accurate results for better clinical care. Technology and TAC representative knowledge enabled the customer to receive support with an experienced Medical Technologist by their side.

Cynthia, who recently celebrated her 25th anniversary with this Sysmex in 2017, said "I am glad that the customer was appreciative, but it's all in a day's work with TAC. This is not an isolated instance. We get many calls where we assist customers with unusual samples. It is gratifying to be able to partner with our laboratory customers to provide quality results for the physicians so that the patients get the care that they need. "

Thanks to Cynthia and the TAC team for all they do.

Sysmex CEO Receives Harvard Business Review Recognition

It's a pleasure to report that Harvard Business Review (HBR) has recognized Sysmex Corporation's CEO, Hisashi letsugu to their list of Best-Performing CEO's in the World. letsugu-san is ranked number 18 on the list and notably is the second-highest ranked health care executive named to the list.

About HBR's Best-Performing CEO Ranking

On average, the 100 CEOs generated a significantly high return on stock during a 17-year tenure, for a 21% average annual return. However, unlike rankings calculated using one-dimensional metrics, subjective assessments or short-term performance indicators, HBR relies on objective performance measures over a chief executive's entire tenure—numbers that often hold steady. letsugu-san began his tenure in 1996 and his longevity has played a role in his effective and consistent leadership and his spot in the HBR ranking.

To learn more about the list and HBR's selection process read the full story on Harvard Business Review's website.



Hisashi letsugu

NEW INNOVATIONS FROM SYSMEX

Last October Sysmex America announced the introduction of two hematology automation systems that will provide laboratories with more customized, scalable and efficient operations. The XN-9100 and XN-3100 automation technology combines the unified mechanization of prior models with new features offering greater laboratory customization and scalability. Of particular note, both systems integrate with the new SP-50, 5th-generation slidemaker-stainer, further enhancing automation that can promote consistency while increasing laboratory efficiency.

XN-9100

Dynamic, high-volume and growing labs seeking greater flexibility in instrument form and function will find it in the XN-9100. The new system provides the same reliable and proficient connectivity options as the XN-9000, but with greater customization that saves space and maximizes productivity.

The XN-9100's many features and benefits include:

- · Space savings over previous models with new twin modularity, combining two neighboring XN units on one wagon
- Enhanced adaptability with add-on modules for lab-specific modification to meet a lab's unique testing needs, including total lab automation (TLA) connectivity that is compatible with major manufacturers' systems
- Enhanced throughput
- · Various flexible designs
- Complete EDTA sample management with integration of ESR* and HbA1C* testing into the hematology line (*in certain countries)



Sysmex XN-9100™ Automated Hematology System

XN-3100

The XN-3100 is a compact benchtop unit. With an optional wagon for greater storage and easy reagent access and replenishment, it is a perfect solution for lower to mid-volume testing facilities. With two XN analyzers processing samples simultaneously, the throughput is consistently high and delivers the advanced clinical parameters larger volume labs have come to rely on.

The XN-3100's many features and benefits include:

- Recommended workload from 250 to 400 samples per day
- Seamless integration of the SP-50 into the workflow
- High morphological quality for diagnostics
- Advanced clinical parameters



Sysmex XN-3100™ Automated Hematology Analyzer



Sysmex SP-50™ Slidemaker/Stainer



XW-100 CLIA-Waived

Faster test results, clinical decisions and greater practice efficiency are coming to physicians' offices with the first CLIA-waived CBC analyzer. Hematology diagnostics leader Sysmex is bringing more lab testing to the point of care. One of the most common blood tests can be conducted reliably and accurately on-site, in as few as three minutes. The device's ease of use and innovative technology means in-house staff can operate it in just a few easy steps, without lengthy certification and training. The new Sysmex XW-100 will improve health care efficiency and patient care, starting in early 2018. Visit www.waivedcbctesting.com for more information.



2017 presented Sysmex America with many opportunities to support and give back to the community. October is always busy with fundraising for Making Strides Against Breast Cancer, a walk sponsored by the American Cancer Society. There was online fundraising, a silent auction and our ever- popular bake sale. Activities culminated with a team of more than 60 Sysmex associates and their families participating in the event.

November drew us towards Thanksgiving and a food drive was held to benefit the local food bank. December provided the annual opportunity to collect toys to support Toys for Tots.



2017



Here is a partial list of other projects and beneficiaries.

- Habitat for Humanity® of Lake County
 - This is Sysmex America's 4th year sponsoring a home build or rehab
- Big Brothers and Sisters Bowl for Kids Sake
- Northern Illinois Food Bank's "A Taste That Matters" sponsorship
- Relay for Life of GLMV
- American Cancer Society[®]
 - Partnered with ACS for employee Healthy Living workshops Skin Cancer Awareness and Breast Cancer Awareness
- Back to School supply drive for a local elementary school
- LifeSource Blood Drive
- Support of Leukemia and Lymphoma Society®
- Red Nose Day working to end childhood poverty
- Gilda's Club® Chicago Sponsorship free cancer support for families
- United Way® of Lake County Book Drive
- American Red Cross (hurricane relief)
- Salvation Army (hurricane relief)
- United for Puerto Rico (hurricane relief)

These and other community initiatives throughout the year are led by the employee-run Sysmex Cares team. They strive to create opportunities for associates to actively contribute and positively impact the community.

GIVE BACK TO COMMUNITY















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Sysmex America, Inc. 577 Aptakisic Road Lincolnshire, IL 60069

SPRING 2018 WEBINARS

February 14, 2018

Evaluation of Anemia and Thrombocytopenia in Neonates

Martha Sola-Visner, MD; Children's Hospital, Boston MA, Associate Professor of Pediatrics, Harvard University

March 14, 2018

Laboratory Value Pyramid as the Essential Blueprint for Volume-to-Value Journey Denise Uettwiller-Geiger, PhD, DLM (ASCP), Clinical Chemist and Director of Clinical Trials, John T. Mather Memorial Hospital, Port Jefferson, NY

April 11, 2018

Managed QC with Beyond Care Quality Monitor: Quantifying the Impact on Lab Quality Metrics

Craig Newsom, MLS (ASCP)cm, Point of Care Testing Coordinator, OhioHealth Laboratories, Columbus, OH; Craig Vilk, MT(ASCP)SHcm, Hematology Technical Specialist, MultiCare Health System, Tacoma, WA

May 9, 2018

Troubleshooting Hematology Abnormal Samples and Spurious Results

Heather Lai, MLS(ASCP)CMSHCM, Clinical Instructor of Hematology/Coagulation/Urinalysis, UnityPoint Health St. Luke's Hospital, Cedar Rapids, IA

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