

FROST & SULLIVAN

BEST PRACTICES

AWARDS

FROST & SULLIVAN

2020 BEST PRACTICES AWARD



**BECKMAN
COULTER**

**2020 GLOBAL
HEMATOLOGY TESTING
NEW PRODUCT INNOVATION AWARD**

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Background and Company Performance

Industry Challenges

Hematology Testing: A Snapshot

While COVID-19 has created multiple opportunities for disruption within the global healthcare ecosystem, Frost & Sullivan forecasts the global hematology in-vitro diagnostics (IVD) market revenue will reach 778.6 million by 2021.¹ As an extremely dynamic market, with a high level of merger and acquisition activity, IVD manufacturers are vying for increased market share.

The market is not without challenges. Current hematology analyzers require a large patient sample volume to run across several systems and produce a full set of results.² In an era where laboratory professionals must do more with less bandwidth, there is a huge opportunity to increase productivity and reduce overhead costs. As such, global laboratories are paying for highly disruptive technologies that aid multiplexing.³ Incorporating multiplexing technologies into the laboratory will allow for the simultaneous detection of multiple blood components from one sample, ultimately easing workloads, maximizing walkaway times, and simplifying operational tasks within the lab. Hematology analyzers that can offer accurate first-pass yield will drive the efficiency demanded by laboratory professionals and clinicians.

Laboratories worldwide are experiencing the need to replace older techniques with newer methods and better-performing equipment. Laboratory professionals and clinicians have vested interest in equipment that comes with automation capabilities and provides improved data interpretation and informatics.⁴ Automation within hematology analyzers allows laboratory professionals to combine the steps required for counting, isolating, and categorizing red blood cells (RBCs), white blood cells (WBCs), and platelets. Moreover, integrating these steps into streamlined workflow processes will automate cumbersome procedural steps like slide preparation and cell analysis, extending walkaway time for the laboratory professional. Eliminating operational tasks with automated quality control (QC) processes and fewer manual touchpoints will drive faster turnaround times, providing clinicians with the diagnostic results they need to make the best medical decisions quicker.

New Product Attributes and Customer Impact of Beckman Coulter

Beckman Coulter Diagnostics (Beckman Coulter), a Danaher Corporation company since 2011, is a global leader in clinical diagnostics. Beckman Coulter develops, manufactures, and markets a range of integrated IVD systems, analyzers, tests, and reagents for clinical laboratories worldwide.

The company meets market needs, helping healthcare professionals by delivering accurate and faster diagnostics for improved patient care.

¹ *Growth Opportunities in the US In Vitro Diagnostics (IVD) Market, Forecast to 2021*, (Frost & Sullivan, May 2017)

² *Ibid.*

³ *Ibid.*

⁴ *Ibid.*

Beckman Coulter is widely known for the Coulter counter, a landmark invention from the 1940s that paved the way for automating particle counting electronically (as opposed to manually). Within the hematology field, the Coulter method is the gold standard to count and size the particles making up the whole blood. A trailblazer in the area, the company's brainchild spurred subsequent developments, including flow cytometers. The Coulter counter technology is foundational in creating the automated hematology market, i.e., human blood analysis.

In modern medicine, the complete blood count (CBC) is the most prescribed test in the hospital setting. Hematology analyzers run tests such as RBC, WBC, and reticulocyte analysis.⁵ Current analyzers automate CBC tests, removing the need for clinicians and laboratory professionals to manually assess blood samples under a microscope. Modern hematology analyzers also need substantially less blood for complete testing.

Notwithstanding incremental advances, innovation in the field remained relatively stagnant over the last several years until recently.

Re-igniting the Innovation Flame: The DxH 690T Hematology Analyzer

The DxH 690T leverages flagship products in the Beckman Coulter diagnostics portfolio, specifically the enhanced Coulter Principle, VCS 360, and DataFusion (analyzes cells in their near-native state), to provide precise cellular RBC, WBC, and platelet assessment with accurate results on the first pass.⁶ With a 93% first-pass yield, the DxH 690T gets the right results the first time, without having to reflect to another module, like the closest competitor. The DxH 690T is more effective and efficient than competing devices at detecting the variety of cell types and morphologies, particularly with abnormalities. The DxH 690T also supports early detection of sepsis for patients in the ED with the Early Sepsis Indicator. The only FDA-cleared hematology biomarker for sepsis, the ESId measures monocyte distribution width (MDW) for early insight into the often deadly condition.

Competitors use indirect methods for blood morphology and characterization and only successfully assess blood 75% of the time. Additionally, these competitive systems require human intervention 25% of the time.

DxH 690T Hematology Analyzer



Courtesy of Beckman Coulter

⁵ *Growth Opportunities in the US In Vitro Diagnostics (IVD) Market, Forecast to 2021*, (Frost & Sullivan, May 2017)

⁶ <https://www.beckmancoulter.com/en/products/hematology/dxh-690t#/overview>

The DxH 690T enables less manual intervention and a smaller fraction of specimen "re-dos," avoiding manual retesting under a microscope and, thus, streamlining laboratory workflows and allowing for higher productivity. Ultimately, the technology is superior at identifying cell types in human blood, providing faster and more reliable assessments for clinical decision-making.

Plug and Play Is the Best Way

"Laboratories are often called upon to do more with less—to balance growing testing demand with resource and cost pressures. The DxH 690T is a great solution for medium-sized laboratories to streamline workflow, report high confidence results, and improve turnaround time by reducing procedural steps and manual touchpoints."

-Peter Soltani, Ph.D., Senior Vice President and General Manager, Hematology, Urinalysis, Workflow & Informatics, Beckman Coulter⁷

With worker shortages in healthcare and more financial pressures, the mantra for instruments and medical equipment is fast, reliable, and easy-to-use; ideally, plug and play systems that enable automated, streamlined workflows.

Beckman Coulter designed the DxH 690T in partnership with medium-sized hospitals and mid-volume laboratories, which do not have the budgets of larger hospital systems, to increase walkaway times, minimize touchpoints, and maximize uptime. The DxH 690T dramatically increases ease-of-use, consistency, and serviceability, while lowering overall operating costs. Its first-pass accuracy enhances operational performance further by maximizing staff time and instrument uptime.

High risk of mortality rate and rising costs of sepsis care puts pressure on hospitals to find ways to detect sepsis earlier in the patient's treatment pathway. Therefore, identifying sepsis quickly and efficiently is crucial. Unfortunately, early sepsis detection is tricky.

The DxH 690T offers the only FDA-cleared Early Sepsis Indicator technology for emergency departments. Unlike existing hematology analyzers, it extracts information about potential disease presence through monocyte morphology. Monocytes serve as early warning signs to clinicians that a patient may develop sepsis. Beckman Coulter's technology identifies these cells early in the disease state and creates a red flag necessary for the clinician to know the patient is at risk for developing sepsis.

Therefore, the DxH 690T provides the cell count, cell differential, and an exclusive Early Sepsis Indicator that measures MDW for early detection of sepsis. The MDW biomarker results report automatically as part of a routine CBC with differential test with no added workload burden for your laboratory or the ED. For laboratories and community hospitals without rigorous protocols or infectious disease experts on the payroll, the DxH 690T brings all of the power and capabilities of a large volume hematology analyzer into the mid-volume space.

⁷ <https://www.prnewswire.co.uk/news-releases/mid-size-laboratories-can-now-enjoy-the-same-efficiency-benefits-as-large-facilities-with-beckman-coulter-s-new-hematology-analyzer-853686494.html>

Large Hospital Capabilities for a Mid-volume Budget

Medical practitioners think about hematology based on daily sample volumes. High-volume hospital laboratories have a larger population of sick patients. In contrast, physician offices often deal with smaller patient populations that are not chronically ill but need basic hematology analyses. From a financial perspective, mid-volume laboratories cannot afford all the bells and whistles of a high-volume hematology analyzer.

Beckman Coulter's competitors typically eliminate some features and capabilities for the mid-volume market. However, the company's vision is to keep as many of the high-volume analyzers capabilities and features for its mid-volume DxH 690T as not to force compromises from a clinical perspective. While marketed at a lower price point to the mid-volume market, the analyzer preserves the DxH 900's clinical and analytical capabilities. From an informatics perspective, the DxH 690T is supplemented with the technology and middleware to assist labs in automating decision-making and result-reporting processes.

"Commercially available globally, the mid-volume instrument builds on our strength and history in hematology innovation and complements our broad hematology portfolio, including the award-winning DxH 520 for low-volume, the DxH 900 for high-volume and the DxH connected work cell solutions for ultra-high-volume facilities."

-Peter Soltani.⁸

Conclusion

The complete blood count (CBC) is one of the most prescribed tests in the hospital setting. Nonetheless, innovation in hematology analyzers has remained stagnant over the last several years.

A pioneer in the global hematology market, Beckman Coulter created a new product for the mid-volume market without compromising clinical effectiveness, launching the DxH 690T in May 2020. The tabletop hematology analyzer's automation capabilities, 93% first-pass yield, and 75% less quality control steps compared to commercially-available systems offer time-pressed clinicians, laboratory professionals, and technologists a more streamlined workflow with increased uptime and lower overhead costs. DxH 690T's effective sepsis detection capability is unique in the industry. For a disease with a 20% to 25% mortality rate, its ability for early sepsis diagnosis will foster improved patient outcomes. Ultimately, for mid-volume laboratories, community hospitals, and physician offices, this landmark innovation enables clinicians and medical professionals to focus on better and more accurate patient care. With its strong overall performance, Beckman Coulter earns Frost & Sullivan's 2020 Global New Product Innovation Award in the hematology testing market.

⁸ <https://www.prnewswire.co.uk/news-releases/mid-size-laboratories-can-now-enjoy-the-same-efficiency-benefits-as-large-facilities-with-beckman-coulter-s-new-hematology-analyzer-853686494.html>

Significance of New Product Innovation

Ultimately, growth in any organization depends upon continually introducing new products to the market and successfully commercializing those products. For these dual goals to occur, a company must be best-in-class in three key areas: understanding demand, nurturing the brand, and differentiating from the competition.



Understanding New Product Innovation

Innovation is about finding a productive outlet for creativity—for consistently translating ideas into high-quality products that have a profound impact on the customer.

Key Benchmarking Criteria

For the New Product Innovation Award, Frost & Sullivan analysts independently evaluated two key factors—New Product Attributes and Customer Impact—according to the criteria identified below.

New Product Attributes

- Criterion 1: Match to Needs
- Criterion 2: Reliability
- Criterion 3: Quality
- Criterion 4: Positioning
- Criterion 5: Design

Customer Impact

- Criterion 1: Price/Performance Value
- Criterion 2: Customer Purchase Experience
- Criterion 3: Customer Ownership Experience
- Criterion 4: Customer Service Experience
- Criterion 5: Brand Equity

Best Practices Recognition: 10 Steps to Researching, Identifying, and Recognizing Best Practices

Frost & Sullivan analysts follow a 10-step process to evaluate Award candidates and assess their fit with select best practice criteria. The reputation and integrity of the Awards are based on close adherence to this process.

STEP	OBJECTIVE	KEY ACTIVITIES	OUTPUT
1 Monitor, target, and screen	Identify Award recipient candidates from around the globe	<ul style="list-style-type: none"> • Conduct in-depth industry research • Identify emerging sectors • Scan multiple geographies 	Pipeline of candidates who potentially meet all best-practice criteria
2 Perform 360-degree research	Perform comprehensive, 360-degree research on all candidates in the pipeline	<ul style="list-style-type: none"> • Interview thought leaders and industry practitioners • Assess candidates' fit with best-practice criteria • Rank all candidates 	Matrix positioning of all candidates' performance relative to one another
3 Invite thought leadership in best practices	Perform in-depth examination of all candidates	<ul style="list-style-type: none"> • Confirm best-practice criteria • Examine eligibility of all candidates • Identify any information gaps 	Detailed profiles of all ranked candidates
4 Initiate research director review	Conduct an unbiased evaluation of all candidate profiles	<ul style="list-style-type: none"> • Brainstorm ranking options • Invite multiple perspectives on candidates' performance • Update candidate profiles 	Final prioritization of all eligible candidates and companion best-practice positioning paper
5 Assemble panel of industry experts	Present findings to an expert panel of industry thought leaders	<ul style="list-style-type: none"> • Share findings • Strengthen cases for candidate eligibility • Prioritize candidates 	Refined list of prioritized Award candidates
6 Conduct global industry review	Build consensus on Award candidates' eligibility	<ul style="list-style-type: none"> • Hold global team meeting to review all candidates • Pressure-test fit with criteria • Confirm inclusion of all eligible candidates 	Final list of eligible Award candidates, representing success stories worldwide
7 Perform quality check	Develop official Award consideration materials	<ul style="list-style-type: none"> • Perform final performance benchmarking activities • Write nominations • Perform quality review 	High-quality, accurate, and creative presentation of nominees' successes
8 Reconnect with panel of industry experts	Finalize the selection of the best-practice Award recipient	<ul style="list-style-type: none"> • Review analysis with panel • Build consensus • Select recipient 	Decision on which company performs best against all best-practice criteria
9 Communicate recognition	Inform Award recipient of Award recognition	<ul style="list-style-type: none"> • Announce Award to the CEO • Inspire the organization for continued success • Celebrate the recipient's performance 	Announcement of Award and plan for how recipient can use the Award to enhance the brand
10 Take strategic action	Upon licensing, company is able to share Award news with stakeholders and customers	<ul style="list-style-type: none"> • Coordinate media outreach • Design a marketing plan • Assess Award's role in future strategic planning 	Widespread awareness of recipient's Award status among investors, media personnel, and employees

The Intersection between 360-Degree Research and Best Practices Awards

Research Methodology

Frost & Sullivan's 360-degree research methodology represents the analytical rigor of our research process. It offers a 360-degree-view of industry challenges, trends, and issues by integrating all 7 of Frost & Sullivan's research methodologies. Too often companies make important growth decisions based on a narrow understanding of their environment, leading to errors of both omission and commission. Successful growth strategies are founded on a thorough understanding of market, technical, economic, financial, customer, best practices, and demographic analyses. The integration of these research disciplines into the 360-degree research methodology provides an evaluation platform for benchmarking industry participants and for identifying those performing at best-in-class levels.

360-DEGREE RESEARCH: SEEING ORDER IN THE CHAOS



About Frost & Sullivan

Frost & Sullivan, the Growth Partnership Company, enables clients to accelerate growth and achieve best-in-class positions in growth, innovation and leadership. The company's Growth Partnership Service provides the CEO and the CEO's Growth Team with disciplined research and best practice models to drive the generation, evaluation, and implementation of powerful growth strategies. Frost & Sullivan leverages more than 50 years of experience in partnering with Global 1000 companies, emerging businesses, and the investment community from 45 offices on six continents. To join our Growth Partnership, please visit <http://www.frost.com>.