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# Medlab Middle East 2024: Genomics, precision medicine and longevity in focus

by Anthony J Permal

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# Contents

03

Introduction



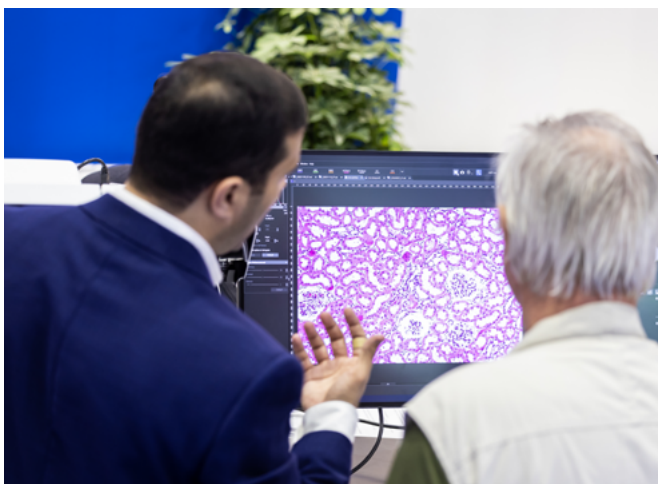
04

Advanced Diagnostics



05

Innovative Laboratory Tools



06

The Rise of Pocket Diagnostics



07. Artificial Intelligence in the Lab

08. Sustainability in Laboratory Operations

09. Conferences, Industry News & Updates

10. Beckman Coulter Diagnostics empowers healthcare systems with innovative technologies

11. Conclusion



# Introduction

**T**he Medlab Middle East 2024 exhibition and congress, held at the Dubai World Trade Centre from February 5 to 8, marked another milestone in the global medical laboratory industry's calendar. This year's edition saw an impressive turnout with over 900 exhibiting companies from more than 40 countries.

Showcased were the latest advancements across a broad spectrum of laboratory disciplines, including Disposables and Consumer Goods, Emergency Medicine, Imaging and Diagnostics, and more, to provide an important platform for global healthcare professionals.

A highlight of this year's event was the introduction of the Next Gen Medicine Zone and Conference. This new addition, developed in partnership with Express Med Diagnostics and Research, spanned 1,500 sqm and featured 100 exhibitors, drawing over 1,000 delegates. The focus was on genomics medicine, precision medicine, and healthcare longevity, underscoring a forward-thinking agenda towards early disease detection and preventive care, something the UAE and GCC region's governments are actively engaged in. This initiative provided a comprehensive overview of the latest breakthroughs in genomics, proteomics, and innovative biomarkers.

The conferences at Medlab Middle East continued the event's annual showcase with robust content, offering 12 CME-accredited meetings covering a wide range of topics from

Laboratory Management to Clinical Microbiology and Future of Lab. These sessions, led by over 130 regional and international speakers, provided invaluable insights and knowledge-sharing opportunities.

Medlab Middle East 2024 continued to facilitate meaningful connections and discussions among industry professionals who attended. It served as a critical hub for innovative thought in lab tech, with key healthcare leaders and companies, including Abbott, Randox, Sysmex, Shaikh Shakhbout Medical City, G42 Healthcare, Dubai Academic Health Corporation and PureHealth, participating in strategic discussions about the future of the laboratory and diagnostics industry.

In this report, we take a look at some of the highlights of laboratory innovation not just in technology but also in new operational focus and future-proof thought.

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“Medlab has taken first place in international shows for all suppliers to meet customers, and distributors, it is the place to be. Coming here, matches Horiba's workplace motto of <joy and fun>, and coming here allows us to practice that very same joy and fun with the industry!”

**Domingo Dominguez,**  
**International Sales Director, HORIBA Medical**

# Advanced Diagnostics

The global market for Advanced Diagnostics, particularly In Vitro Diagnostics (IVD), has shown robust growth and significant advancements in recent years. In 2022, the IVD market was estimated at US\$94.67 billion and is projected to grow at a CAGR of 7.1% by 2030, rising to US\$157.02 billion, a growth attributed to rising incidences of infectious and chronic diseases and the increasing adoption of IVD technologies.

Technological innovations continue to be the major driver of this growth. For instance, the immunoassay segment dominated the market in revenue terms in 2023, spurred by the demand for early disease diagnosis and the development of new diagnostic instruments. The recent pandemic encouraged countries like the UAE and Saudi Arabia to invest heavily in immunoassay diagnostics to stay in front of the curve in rapid COVID-19 testing. Molecular diagnostics also witnessed notable advancements, with innovations aimed at reducing result turnaround times and expanding test capabilities which provide rapid results.

The market dynamics are continuously influenced by strategic partnerships and expansions by key players aiming to enhance their market presence and product portfolios. For example, this year in the UAE, GE HealthCare launched the region's first mobile cardiac catheterisation lab to advance the delivery of high-quality cardiac care. The state-of-the-art unit is set to enhance

patient access in underserved areas of the country, something the health authorities have been striving towards.

With more than 50% of UAE residents affected by heart disease, the fully-equipped lab may reduce the significant health burden of cardiovascular disease and non-communicable diseases, something that stays in line with the UAE's strategic national development priorities.

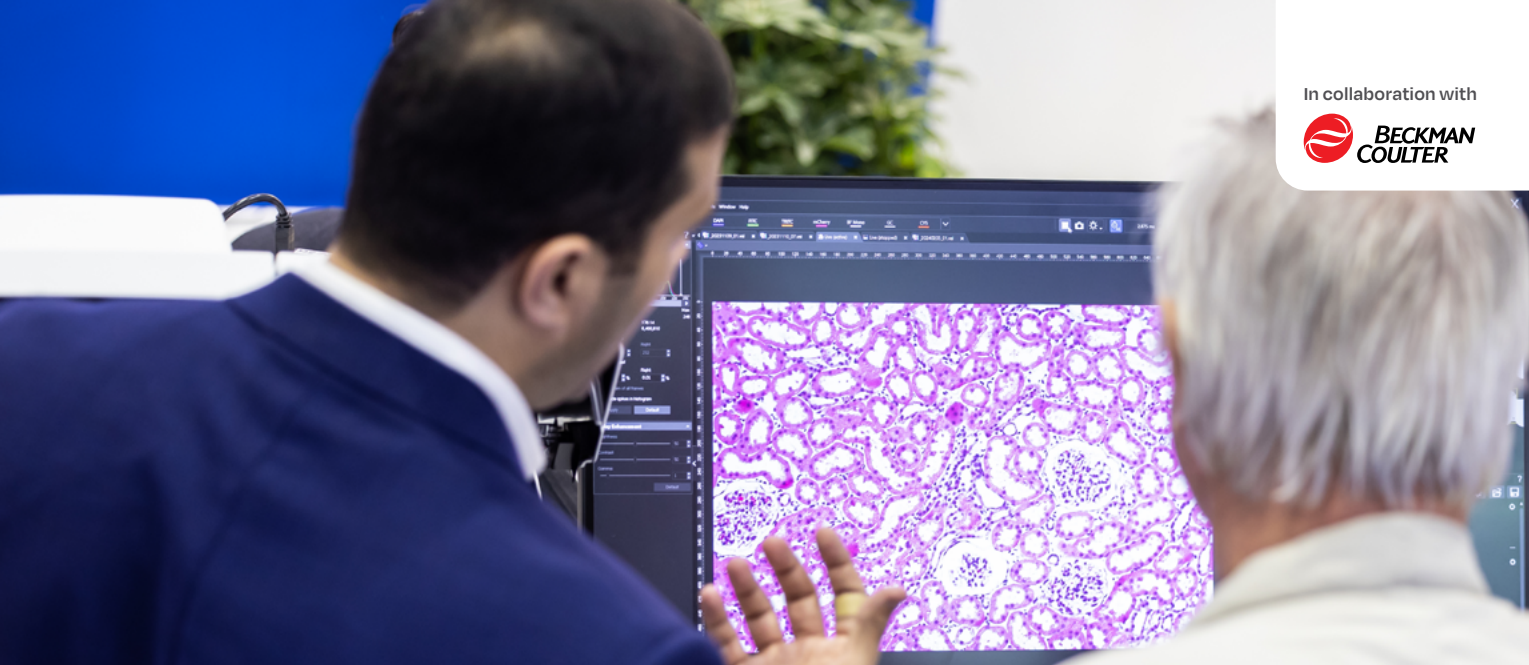
Companies like Abbott Laboratories, Beckman Coulter, Diagnostik Net | BB, Euroimmun, Randox, Tosoh, Sysmex and others were among the market leaders in this space exhibiting at Medlab Middle East 2024. In a notable first, Pakistan's Lab Diagnostic System (LDS) showcased its advanced solutions in in-vitro diagnostics, tailored for the dynamic environment of Pakistan's vast populace, particularly given the high percentage that lives in remote areas.



**“Advancements in the lab business will only depend on the advancements in two areas: automation and robotics.”**

**Akram Azmy**  
VP, Strategic Growth EEMEA, Beckman Coulter





## Innovative Laboratory Products

An innovative showcase of the latest in laboratory tools and technologies was on display at Medlab Middle East 2024, reflecting the latest trends in lab medicine and diagnostics. A wide variety of updates to existing tools and brand-new innovations were centre-stage at the event, including in areas such as rapid diagnostics, AI-assisted treatment planners, immunoassay diagnostics, imaging, disposables, testing equipment and more.

Some of the innovative tools and technologies presented included: **Abbott's Mixed Reality Laboratory Solutions:** A revolutionary new lab testing support tool which allows a patient to engage with augmented visuals through goggles they wear, while they undergo diagnostic tests, thereby reducing anxiety levels and easing the process for lab technicians.

**Beckman Coulter's DxC 500 AU Chemistry Analyzer:** An automated clinical chemistry analyser that is part of a comprehensive portfolio designed to address the complete needs of healthcare systems. This tool is aimed at enhancing the technology and capabilities of satellite and independent hospital laboratories.

**Tosoh's AIA®-CL300:** Called the "small giant," by its team as well as many in the industry privy to its features, this compact automated chemiluminescent enzyme immunoassay analyser caters to a wide range of clinical laboratory needs, from routine analysis to emergency use and specific pathologies, enhancing assay analytical specifications for laboratories of various sizes. It is termed this way due to the vast array of operational features, despite its size.

**Randox's Evidence MultiSTAT:** An automated analyser that can detect up to 48 targets from a single patient sample. It uses patented Biochip Array Technology, which enables rapid and precise detection of multiple analytes.

**Sysmex's Clinical Flow Cytometry Solution:** A modular, integrated system which helps to efficiently manage sample and data flow, covering the steps from sample preparation to analysis and reporting.

**Proma Therapeutics:** Among its wide range of lab diagnostic innovations, particular focus was on its PA100 Electrolyte

Analyser, a cutting-edge device that accurately measures various essential parameters in specimens, which include whole blood, serum, plasma, and urine, aimed at precision and accuracy, and ProFlow, Promea's immunodiagnostic assays which provide sensitive and specific detection of infectious diseases, autoimmune conditions, and other biomarkers.

**Kriya Medical Technologies' KRIVIDA Trivus:** The world's fastest single-tube, open platform RespiPanel RT-qPCR Kit, is a diagnostic tool that enables simultaneous detection of RSV, Influenza and SARS-CoV-2, in a single oropharyngeal and nasopharyngeal swab sample, in a record 27 minutes total cycle time.

As part of the event's commitment to fostering innovation, the **Labpreneur** competition was hosted on-site, showcasing innovative concepts from startups in the medical laboratory field, providing delegates from the medical and business fields the opportunity to see where the industry's technological revolutions will take place next, as well as how they could be a part of it.

Some of the most exciting startups on hand to display their progressive innovations included Kazakhstan's AIDENTIS, a cutting-edge AI-powered dental diagnostics solution; UAE's homegrown IhealthScreen, which aims to develop novel innovative software for retinal image grading and diagnosis of diseases and screen diseases for early detection; and KSA's Phys, which features a combination of cutting-edge AR technology to help manage children's screen time.

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“Medlab Middle East is an event that has so much to offer to everyone in the industry. We want to make sure we are here to enable everyone to see what our most innovative diagnostic solutions are so that you can thereby live a better life!”

**Joana Araujo**  
Marketing Head for Transfusions, Abbott

# The Rise of Pocket Diagnostics

The Middle East point-of-care diagnostics market experienced significant growth, driven by its crucial role in facilitating rapid disease detection and management in various healthcare settings, especially in remote or underserved areas with limited access to traditional laboratory facilities. These technologies are instrumental in emergency departments, primary care clinics, and home healthcare settings, enhancing the speed and accuracy of diagnostics.

According to Data Bridge Market Research, the POC diagnostics market which was valued at US\$1.54 billion in 2023, is projected to reach US\$2.47 billion by 2031, with a CAGR of 6.1%. A key driver is the rise in innovation for what is termed as pocket diagnostics, or smaller, portable devices that bring the full spectrum of diagnostic tools within them.

The integration of advanced technologies in diagnostics is facilitating the development of pocket diagnostics and lab-on-a-chip devices, enabling rapid and convenient testing close to the patient or even at home. The UAE is a pioneer in this advancement, with most major private healthcare providers including Aster DM, MedCare, Thumbay and more offering full-suite in-the-home diagnostic services.

At Medlab Middle East 2024, pocket diagnostic innovations were on display, including Nanopore Technologies from the UK, which makes scalable DNA and RNA sequencing products, Spectrum

Diagnostics, which produces portable photometers, and Aidian Oy from Finland that produces portable instruments that measure CRP, CRP+Hb and Strep on the go.

Brazil's Hilab, in particular, showcased The Hilab Volt, an advanced electrochemical test analyser that detects organic molecules, metal ions, proteins, antibodies, and more. It uses cutting-edge electroanalytical techniques and is particularly notable for its wide range of redox reaction-based techniques, which provide detailed analysis and precise quantification of species.

As the diagnostics sector continues to evolve, collaboration between healthcare and MedTech organisations is crucial for designing devices that address unmet needs and improve patient outcomes.



**“Medlab Middle East 2024 is a great opportunity to showcase how our diagnostic solutions save lives and improve public health. Early diagnoses and appropriate treatment are critical to improving sepsis patient outcomes. Rapid Diagnostics enable early therapy decision for optimal septic patient management”**

**Canan KIZILKAYA**  
**AMS/AMR Product Manager, METER, bioMerieux**





## Artificial Intelligence in the Lab

One cannot have a conversation about the rise of medical laboratory innovation without talking about the rise of Artificial Intelligence (AI) in the industry. An increasingly fundamental component of modern healthcare, its application in medical laboratories encompasses a broad spectrum of functions, from enhancing diagnostic accuracy and efficiency to revolutionising patient care and outcomes.

Medical diagnosis is heavily influenced by AI, particularly in simplifying processes. Laboratories are leveraging AI-based diagnostics, machine learning, and data analytics to improve operational accuracy, reduce test turnaround times, and enhance the overall quality of patient care, allowing for continuous monitoring of KPIs such as sample turnaround time, test volume per instrument, and test cost per unit.

Pathology is also being innovated due to AI. Digital and computational pathology, coupled with advances in next-gen sequencing and precision medicine enables pathologists to make better informed clinical decisions. Computational pathology utilises AI models, machine learning, and visualisations to make lab outputs more useful and easily understood by clinicians. AI also aids in assessing and interpreting various medical imaging studies, such as the detection of diabetic retinopathy through fundus retinography and intracranial haemorrhage in emergency care head CT scans.

The growth — and thereby, acceptance — of AI in healthcare is underscored by the rise in investment towards it. The global market size which was valued at US\$20.9 billion this year, according to Markets and Markets, is estimated to reach US\$148.4 billion by 2029, a CAGR of 48.1%. This surge is not surprising, given the healthcare industry's rich data sets ideal for AI applications. In the UAE alone, the AI in the healthcare market, which BlueWeave Consulting assessed to be sized at US\$119 million in 2022, is expected to expand to a value of US\$ 987.6 million by 2029.

Key operators in the UAE currently engaging with AI include IBM Watson Health, NVIDIA, Microsoft Healthcare, Cerner Middle East and Africa, Healthigo and Mubadala Healthcare, many of whom were on hand at Medlab Middle East 2024 to showcase how they are enhancing lab and diagnostic testing via their innovative solutions. Among international exhibitors coming into the country, Spain's Microptic, Sweden's Cellavision and the US' Techcyte joined many others to display their AI-powered diagnostic innovations.

However, with benefits come many concerns, and the industry's AI focus faces challenges such as data validation, legal responsibilities, and the ethical use of AI in medicine. The regulatory conversations around AI in healthcare are increasingly focused on reliability, but also on the pros and cons of removing the human element from the diagnostic situation.

# Sustainability in Laboratory Operations

One of the biggest contributors to waste in healthcare is medical laboratories, which is why they are increasingly adopting sustainable practices and leveraging new technologies to reduce their environmental impact, given that laboratories are typically resource and energy-intensive due to the nature of scientific research, often requiring controlled temperatures, high sterility, and the use of specialised equipment and consumables.

Research activities form a large section of this environmental footprint. Many scientists are making efforts to make their labs more sustainable. For instance, a Royal Society of Chemistry survey revealed that 79% of respondents were aware of how their actions impacted the environment, and 84% wished to further reduce their day-to-day scientific work's environmental impact. About 63% had already made changes to lessen their environmental impact within the last two years.

Shaikh Shakhboub Medical City was on hand to shed light on sustainability in the lab. They underscored how the healthcare sector, despite its commitment to not harm, faces a paradox as its services inadvertently increase carbon emissions, contributing to climate change and thereby exacerbating health crises. This ironic situation highlights the urgent need

for the healthcare industry to address its carbon footprint. Additionally, in a presentation during the conference, Unmesh Lal, Research Director – Healthcare and Lifesciences Practice and Growth Coach at Frost & Sullivan, addressed the two key areas that need to be addressed urgently, namely waste management and net zero emissions.

“Any technology that is going to optimise and monitor sustainability will see increased implementation over the next couple of years. Many platforms are incorporating ESG in their growth strategy. We are seeing several laboratories working with external consultants and using some of these sustainability platforms and the panellists put the spotlight on the need to transition towards a health and wellness system that is preventative, predictive, precise, and personalised.”

The incorporation of new technologies therefore plays a vital role in making laboratories more sustainable. Instruments such as those displayed at Medlab Middle East 2024 that come with built-in data intelligence systems and real-time sensing technology can provide better visibility into lab operations, enabling more informed decisions that advance lab operations to new levels of efficiency and productivity, considerably lowering costs and more importantly, carbon emissions and waste production.







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Medlab Middle East

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## Conferences and Industry Updates

Medlab Middle East delivered a range of intellectual thought during the event, as showcased during its wide range of seminars and conferences that covered a broad spectrum of topics in laboratory medicine and healthcare innovation.

The conference consisted of 12 Continuing Medical Education (CME) accredited meetings, which attracted over 5,000 delegates and featured over 200 local and international speakers, solidifying the event's status as the largest CME-accredited multi-track medical laboratory congress globally.

The wide array of topics and tracks included in-demand subjects, including the Future of Lab Track, which focused on addressing the worldwide shortage of pathologists and lab technicians, the rise of AI in lab processes, precision medicine, revolution in point of care testing, cancer diagnostics evolution, big data and large language models (LLM). The Sustainability in the Lab track further focused on implementing green practices and their outcome, the environmental impact of the lab, the value of credentialing and sustainability in the medical education curriculum among others.

One of the more specialised seminars, the Haematology Conference, provided insights into current challenges and novel strategies in the field, such as diagnosing and monitoring T-lymphoblastic leukaemia and large cell lymphomas, as well as advanced techniques in flow cytometry analysis for plasma cell neoplasms.

Among the highlights were the newly introduced conference tracks on NextGen Medicine and Clinical Genomic Interpretation, a part of the event's focus on the future of laboratory medicine and its role in advancing diagnostics and treatment. This conference offered attendees a glimpse into the future of personalised healthcare, with over 100 exhibitors presenting on topics like genomics medicine, precision medicine, and healthcare longevity.

The NextGen Medicine Conference, chaired by Dr. Karolina Kobus of Express Med Diagnostics and Research, convened leading experts, researchers, and healthcare professionals to discuss the latest advancements in medical technology and precision diagnostics. The conference covered critical topics such as early cancer detection, precision oncology, and preventative health screening.

Dr. Kobus highlighted the transformative impact of next-generation sequencing (NGS), proteomics, and artificial intelligence (AI) in propelling global scientific endeavours. The essence of NextGen medicine lies in its threefold approach: prevention, early detection, and the creation of targeted treatments, marking a departure from the conventional one-size-fits-all healthcare model towards more individualised health strategies.

While the spotlight was shone on these strides in science and healthcare, the conference highlighted major concerns and challenges, including in the representation of genetic diversity. The Human Pangenome Reference Consortium's recent update, which expanded the human pangenome to include 47 individuals, showcases the underrepresentation of the Arab population in the human reference genome, an issue many researchers in the region are striving to address.

Tom Coleman of Informa Markets Healthcare underscored the substantial contributions Middle Eastern genome projects could make to global science and regional healthcare improvement. "At Medlab Middle East 2024, leading researchers in NextGen medicine, collaborating with ExpressMed Diagnostics and Research, aim to enhance global science and regional healthcare through genome sequencing tailored treatments. Genetic disorders are widespread in the Arab world, making it vital to understand genetics. The UAE's 10-year genome strategy and advanced technologies like AI will benefit Emiratis and researchers studying Arab populations' healthcare needs.

# Beckman Coulter Diagnostics empowers healthcare systems with innovative technologies

Renowned leader in clinical diagnostics Beckman Coulter introduced the DxC 500 AU Chemistry Analyzer at Medlab Middle East this year. The innovative automated clinical chemistry analyser is specifically designed to enhance the capabilities of satellite and independent community hospital labs, thereby complementing central hub laboratories.

In the evolving landscape of healthcare systems, hub-and-spoke models have gained popularity for their ability to improve efficiency and increase access to healthcare services. These optimise resources, improve access to testing services, enhance standardisation for quality testing, and have a positive impact on inventory for mega laboratories.

Recognising the need to support these evolving healthcare models, Beckman Coulter developed the DxC 500 AU Chemistry Analyzer. The advanced analyser offers a wide range of high-quality assays that consistently deliver reliable results across Beckman Coulter's AU clinical chemistry systems. By providing accurate and dependable clinical data, the DxC 500 AU Chemistry Analyzer significantly improves clinical decision-making and ultimately enhances patient outcomes.

The DxC 500 AU Chemistry Analyzer advanced automation technology helps laboratories streamline their workflows and save valuable time and resources.

With an extensive menu of over 120 assays, all independently verified for their high-quality performance, the DxC 500 AU Chemistry Analyzer surpasses industry standards and instills confidence in clinical results. These assays have undergone rigorous Six Sigma assessment, ensuring their reliability and accuracy.

The Director of Client Services and Technology for Westgard QC has run analytical studies to confirm the performance of the DxC 500 AU Analyzer. The results exceeded the demands of the new, more stringent CLIA 2024 performance specifications.

Beckman Coulter Diagnostics empowers healthcare systems to deliver high-quality care and improve patient outcomes and commits to bringing innovative technologies to the In Vitro Diagnostics world.

Recently, their mother company Danaher Corporation launched a collaboration with Johns Hopkins University to improve neurological diagnosis that specifically focuses on

mild Traumatic Brain Injury (TBI). The collaboration, known as the Danaher Beacon for Brain Injury Diagnostics, aims to identify mild TBI earlier and more precisely using new blood-based biomarkers. To achieve this goal, scientists will leverage the highly sensitive technology developed by Beckman Coulter Diagnostics.

Beckman Coulter Diagnostics solutions technologies have run the test of time, delivering early diagnostics solutions for an amplitude of health conditions with the precision needed by clinicians to upscale their patients' treatment options.

"Beckman Coulter's exceptional technologies, such as the DxC 500 AU Chemistry Analyzer, the DxA 5000 automation series and the Dxl 9000 Immunoassay Analyzer, optimise laboratory operations and positively impact patient care," said Jamie Phares, Senior Vice President of Commercial Operations, High Growth Markets. "With a focus on innovation and excellence, Beckman Coulter ensures that healthcare professionals have access to cutting-edge technology, a comprehensive menu of assays with a high prevalence of Six-Sigma performance, and reliable overall results. Beckman Coulter will continue to drive advancements in clinical diagnostics, improving patient outcomes and contributing to the evolution of healthcare systems."

A global leader in clinical diagnostics, Beckman Coulter Diagnostics has challenged convention to elevate the diagnostic laboratory's role in improving patient health for over 80 years. Armed with a mission to 'Relentlessly Reimagine Healthcare, One Diagnosis at a Time', they do this by applying the power of science, technology and the passion and creativity of our teams. Their diagnostic solutions are used in complex clinical testing and found in hospitals, reference laboratories and physician office settings around the globe.

Beckman Coulter Diagnostics, headquartered in California with more than 11,000 global team members, exists to deliver smarter, faster diagnostic solutions that move the needle forward from what's now to what's next. The team accelerates care with an extensive clinical menu, scalable lab automation technologies, insightful clinical informatics, and optimised lab performance services.

Beckman Coulter Diagnostics is also proud to be part of Danaher, a global science and technology leader. Together they combine their capabilities to accelerate the real-life impact of tomorrow's science and technology to improve human health.

# Conclusion

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Medlab Middle East 2024 continued to underscore its pivotal role in propelling the medical laboratory industry forward through another successful year. Among its major highlights included the debut of the Next Gen Medicine Zone, emphasising genomics and precision medicine, and the AI and sustainability discussions that marked a significant stride towards integrating innovative solutions and eco-conscious practices in laboratory operations.

The rise of pocket diagnostics showcased the industry's shift towards more accessible and immediate healthcare solutions, especially in underserved regions, something of major importance in the UAE, KSA and Qatar's healthcare plans. The conference sessions, enriched by 130+ experts,

not only provided CME-accredited learning but also fostered a collaborative environment for sharing groundbreaking ideas and practices. Medlab Middle East 2024 is crucial in regional lab innovation, with advancements in diagnostics, AI, and sustainability setting new benchmarks for the future of healthcare and laboratory operations, highlighting a clear trajectory towards more personalised, efficient, and sustainable healthcare solutions.

Join us next year at Medlab Middle East 2025 as we bring you more advanced technologies, front-line thought leadership and innovative startups that are reshaping healthcare for the betterment of all.



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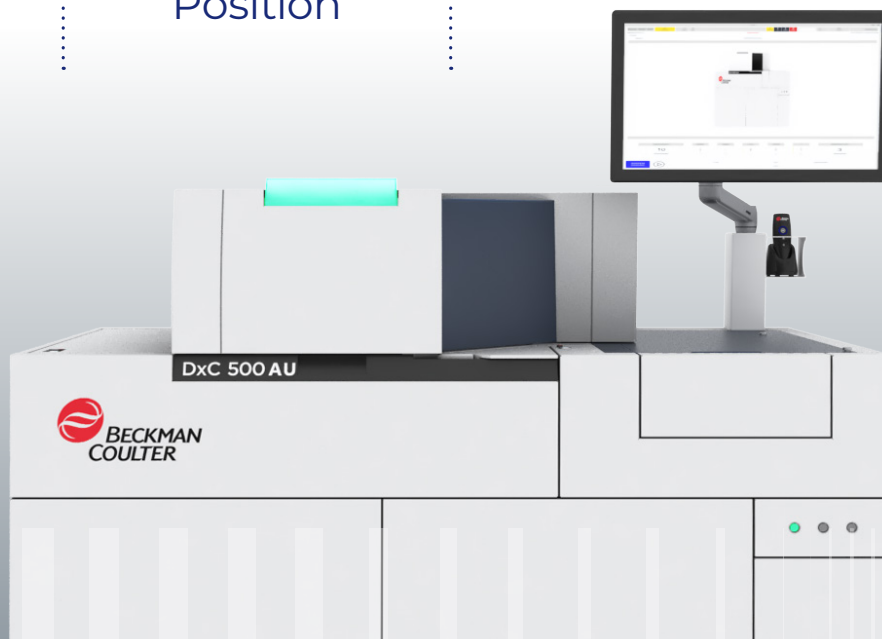
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