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Scientific Excellence 2026

Advancing Laboratories Beyond Limits

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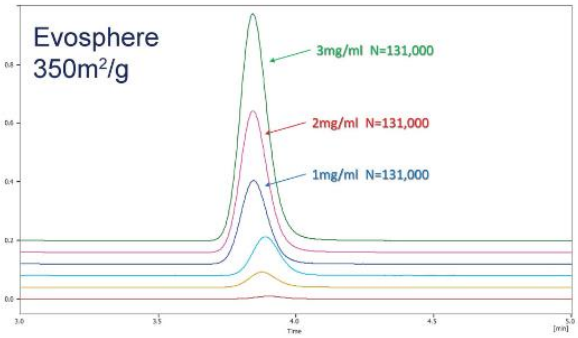

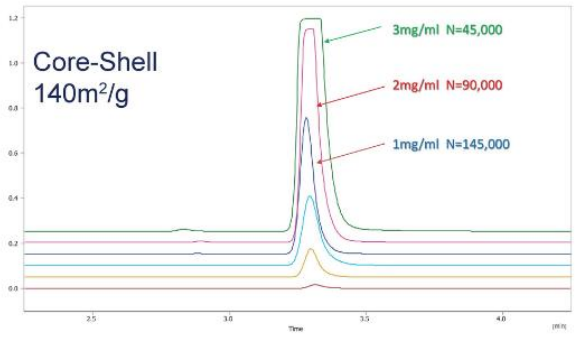

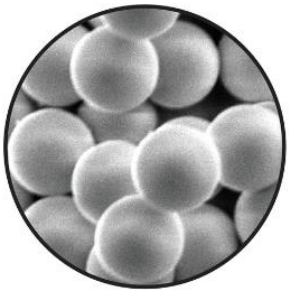

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Editor's Word

Dear Readers,

Welcome to a fresh and forward-looking edition of Microbioz India.

In an era where science and innovation are evolving at an unprecedented pace, our mission remains clear—to bring you content that not only informs but also inspires new perspectives and possibilities. This issue has been thoughtfully curated to reflect the dynamic landscape of the pharma, biopharma, laboratory, and analytical industries, offering you a blend of insights, innovation, and industry intelligence.

Our cover story, "**Scientific Excellence 2026: Advancing Laboratories Beyond Limits,**" takes you into the heart of how scientific breakthroughs are being transformed into scalable, impactful solutions. It explores the strategies, challenges, and vision that define success in today's highly competitive environment.

Adding further depth to this edition, we feature "**Why PTFE Gaskets Are Highly Relevant to the Biopharma Industry!!**" contributed by Ami Polymer—an article that highlights technological advancements shaping efficiency and precision in modern bioprocessing.

As we continue to embrace the digital evolution, Microbioz India is expanding beyond print—bringing you closer to real-time updates, multimedia experiences, and interactive engagement through our online platforms. We encourage you to explore more on our website and stay connected with us across our digital channels.

Your feedback remains at the core of our growth. It is your trust and engagement that drive us to continuously raise the bar and deliver meaningful, high-quality content tailored to your interests.

Thank you for being a valued part of the Microbioz India community. We hope this edition sparks ideas, fuels innovation, and keeps you informed on the trends shaping our industry.

Enjoy the read!

Warm regards,

Kumar

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Scientific Excellence 2026

Advancing Laboratories Beyond Limits

A new epoch is upon the global scientific community. The new laboratory model reaches beyond the isolation of research activities. By 2026, the pharmaceutical, biotech, healthcare, diagnostics, analytical, environmental, and academic laboratories will all be connected through intelligent ecosystems in digital, automated, and sustainable formats.

Each of these new models will uphold the highest standards of scientific excellence through the speed and precision of their findings, adhering to regulations, and, collaborating and adapting where necessary.

As the various sectors of the ecosystem, especially the health-related ones, face greater demands to accelerate progress and innovation, the laboratory is becoming foundational to scientific and industrial progress.

Each of the components of modern laboratories (advanced analytical instruments, smart diagnostics, robotics, and cloud-based data and workflow management systems) stretches the limits of what is possible.

The metamorphosis that occurs within laboratories of all branches of science and its associated fields is aptly captured in the theme of "Scientific Excellence 2026: Advancing Laboratories Beyond Limits." It is the meeting of science and intelligence, the precision of automation, and the new innovative research capabilities.

The Rise of Intelligent Laboratories

Laboratories of 2026 will embrace seamless digital transformation to achieve efficiency and excellence in reproducibility and operations. Artificial Intelligence and Machine Learning will be embedded in laboratory processes to conduct predictive analyses, automate the interpretation of results, and enhance the quality of decisions made.

Smart laboratories are being equipped with:

1. AI analytical tools
2. Cloud-based Laboratory Information Management Systems (LIMS)
3. IoT devices
4. Sample automation systems
5. Robotic liquid handlers
6. Digital twins for lab simulation and optimization

Having these systems help reduce human errors, speed up lab workflows, and allows researchers to divert their focus onto different lab tasks and scientific research.

Automation has transitioned from being a luxury to a necessity especially for labs that want to stand out and keep up with a competitive market.

Fast & Precise

Modern labs in the pharmaceutical and biopharmaceutical fields are under immense pressure to provide more and faster results while still being analytically precise and compliant with regulations.

To achieve these goals, modern pharmaceutical labs are utilizing:

1. High-throughput screening systems
2. Advanced solutions in chromatography and mass spectrometry
3. Real-time stability monitoring
4. Continuous supply chain analytics
5. AI-powered drug discovery
6. Digital QC and validation

Next-gen therapeutics and biologics and biosimilars, as well as personalized medicine, have seen a rapid rise in development by modern pharmaceutical labs.

Furthermore, modern labs are ensuring data integrity by automated documentation processes and traceability systems that are in line with today's standards.

Revolutionizing Diagnostics and Healthcare Labs

Modern clinical and healthcare labs are rapidly advancing and continuously improving their infrastructure in order to keep up and meet the heightened demand due to the need for faster and more accurate diagnostics in a post-pandemic world.

Key trends shaping healthcare laboratories in 2026 include:

1. Expansion of molecular diagnostics
2. AI pathology and imaging
3. Innovations in point-of-care testing
4. More automation in clinical microbiology
5. Integration of digital pathology
6. Smart lab management solutions

The integration of predictive analytics and real-time data into lab workflows is advancing the goal of precision healthcare and enhanced patient outcomes.

The merging of diagnostics and digital health with laboratory science is central to clinical decision-making which is drawing lab insights to the forefront, leading to a more integrated healthcare ecosystem.

Sustainability: The New Scientific Responsibility

As the world focuses on sustainability, this became a central focus of laboratories and research organizations. Today's Scientific excellence is determined by both cutting-edge solutions as well as responsible innovation.

Labs are going greener by:

1. investing in sustainable lab equipment
2. Sustainable packaging and consumables
3. Smart energy and design
4. Waste and water reduction

Green lab design is a considerable trend in the pharmaceutical as well as academic and industrial research sectors. Balancing sustainability with efficiency and compliance is the focus of investment activity.

Laboratories of the future will be equally advanced and responsible.

The New Digital Age: Data Integrity and Cybersecurity

With laboratories moving to more digitized environments, data integrity and cybersecurity are more of a focus than ever. The large volumes of sensitive research and patient data, secure digital infrastructure, will become a top priority. To safeguard research data, clinical info, intellectual property, regulatory documentation, and cloud-based analytic records, advanced cybersecurity frameworks are being incorporated into laboratory environments.

The developing Digital Compliance and Secured Data Management Systems have addressed the challenges of transparency, trust, and worldwide regulatory requirements.

Greater integration of laboratories has also increased the demand for more sophisticated digital frameworks and data governance.

The Human Element of Scientific Excellence

Contrary to popular belief, the advancement of automation and Artificial Intelligence systems has actually given an edge to experienced professionals such as highly skilled scientists, laboratory gurus, researchers, and quality specialists, to interpret and provide insight into a variety of findings, and above all safeguard end ethical practices in science.

In 2026, more organizations will invest in:

1. Upgrading the workforce
2. Training digital laboratories
3. Cross-discipline scientific collaboration
4. Cultivating leadership skills
5. Developing innovation-focused research

The of the laboratory workforce of the future will require a unique combination of scientific knowledge, digital skills, cognitive, and flexible thinking.

Scientific achievement is ultimately possible when advanced technologies facilitate, rather than replace, human thinking.

Governing New Laboratory Innovations

More of a few disruptive technologies are changing the way labs are run with newer possibilities.

Some promising technologies are:

1.Artificial Intelligence & Machine Learning

2.Robotics & Collaborative Automation

AI is designed to improve prediction and quality of experiments and lab automation.

Robots improve productivity and precision by taking over repetitive tasks.

Digital Twins

Researchers can now use virtual laboratory simulations to optimize workflows, predict outcomes, and design better operational procedures.

Advanced Genomics and Proteomics

Technological advancements in sequencing and "omics" are leading us further into genetic engineering and biopharmaceuticals.

Smart Sensors and Real-time Monitoring

In laboratories, connected devices can lead to continuous monitoring of the environment and processes.

Quantum Computing in Scientific Research

Soon, new computational abilities may change the way complex molecular modeling and the pharmaceutical research industry function.

Collaboration Driving Global Scientific Innovation

In 2026, the progress of science is reliant on collaboration between researchers and the academic, industrial, medical, and technological regulatory sectors.

Collaborative research ecosystems yield:

1. Scientific discoveries
2. New innovations
3. World-wide data sharing
4. Speedier clinical research
5. Better standardization of laboratories

Collaboration beyond borders and research within multiple disciplines are becoming important parts of solving the complex challenges of healthcare, sustainability, food safety, and new illnesses.

A laboratory is now a center of innovation that creates connections and helps advance society and science.

Analytics to Action: The Evolution of **Modern Pharmaceutical Science**

The technology boom is changing the pharmaceutical industry in a way that we will look back on as historically significant. From digital intelligence to advanced target therapies, the industry is innovating rapidly and moving toward an era of data driven design. Data is still of utmost importance. Today, using data and analytics is strategically as a differentiating feature is a much larger and rapidly departing consideration than it has ever been for the industry.

Data based research has solidified itself as a cornerstone of modern pharmaceutical science and will continue reshaping the industry as it allows for the automation and optimization of the entire pharmaceutical value chain.

The disruption of infrastructure, tools, and strategies seen the modern science of pharmacy and the practice of pharmacy aligns well with the theme of "Analytics to Action: The Evolution of Modern Pharmaceutical Science"

The New Era of Data-Driven Pharmaceutical Science

The nature of the work carried out in research and development is to generate data and information. Pharmaceutical companies and their partners must push data production to the limits as a part of their competitive strategy. Automated systems within labs continue to deploy analytical tools that produce insights in record time.

Contemporary pharmaceutical companies capitalize on:

1. Artificial intelligence and machine learning
2. Predictive analytics
3. Sophisticated systems for chromatography and spectroscopy
4. Digital solutions for laboratory management
5. Cloud-based systems for data integration
6. Real-time analytics for manufacturing
7. Automated systems for quality control

Competitively, the ability to translate complicated data sets into sizable operational intelligence is paramount in high-speed research and operations.

Predictive decision-making, as opposed to reactive problem-solving, is becoming the forefront of modern pharmaceutical sciences.

Analytics With AI is Speeding Up Drug Discovery

Historically, drug discovery has been an incredibly slow and painstaking process with a predictable set of outcomes. New therapeutics require a considerable investment of time and resources to bring to fruition. Advanced analytics, especially in combination with an AI research framework, are revolutionizing the process of drug discovery.

Advanced analytics are being used to:

1. Determine potential therapeutic targets.
2. Anticipate drug behavior and potential toxicity.
3. Parse and organize genomic data and proteomic research.
4. Prioritize the selection of lead compounds.
5. Model and design systems of human biology.
6. Develop and refine in vitro and in vivo testing to improve pare clinical assessment.

The power of machine learning to process vast amounts of data in a fraction of the time, coupled with considerable advancements in analytics, are streamlining the research process.

The marriage of powerful analytics and drug development is condensing the time and increasing the likelihood of successful discoveries.

Analytics in Health Care

The advent of powerful drug development analytics is heralding the age of 'precision medicine.' Taking medicine away from a 'one size fits all' mentality and elevating medicine to 'precision' and personal customization is the new age of pharmaceutical science.

With the help of data analytics, researchers will be able to study:

1. Variations in genes
2. Responses in biomarkers
3. Patterns in the progression of the disease
4. Reactions to treatment on a case-by-case basis
5. Clinical data from therapeutic use

With this technology, it is possible to effectively create treatments for oncology, rare diseases, immunology, and chronic disease management.

The advanced development in data analytics has resulted in another advancement in personalized medicine. This allows researchers to keep track of the effectiveness of the treatment and improve patient outcomes.

Smart Manufacturing and Pharma 4.0

The world of pharmaceutical manufacturing is rapidly changed to Pharma 4.0. This a world which is fully digitized, automated, and uses real time data to control and optimize manufacturing processes.

Modern facilities are utilizing:

1. Continuous manufacturing
2. Process Analytical Technologies (PAT)
3. Smart Sensors combined with IoT
4. Maintenance which Predicts Deviation
5. Automated Management of Deviation
6. Quality Monitoring in Real Time

With all these advancements in technology, the pharmaceutical manufacturing industry is able to improve efficiency, lessen waste, and decrease operational threats.

Thanks to the real time analytics, the pharmaceutical industry is able to sizable improve the reliability of operations while also improving the regulatory standards which must be met.

The use of data analytics in manufacturing has transformed the state of the industry and has improved quality step to a proactive approach rather than reactive.

Strengthening Quality and Regulatory Compliance

It is essential that the industry raises the bar as Regulatory guidelines are continuously adjusting. It is important to have transparent, traceable, and most importantly, accurate data.

Analytical systems enable:

1. Automating compliance monitoring
2. Managing electronic batch records
3. Validating data digitally
4. Ensuring data integrity
5. Maintaining audit-ready documents
6. Implementing risk-based quality management

To enhance the quality of products and safety of patients, many regulatory bodies are advocating for the usage of modern analytical technologies.

Data analytics helps organizations strengthen their corrective and preventive actions (CAPA) and also helps identify trends and predict future deviations.

Quality in the current pharmaceutical context is no longer seen as a final checkpoint. It now spans the entire lifecycle of a product and is achieved through continuous monitoring and intelligent analytics.

AI Redefining Pharmaceutical Innovation

AI has undoubtedly been one of the most disruptive technologies in recent years. It is influenced pharmaceutical sciences in almost all areas including, research, production, diagnostics, and even supply chain management.

Examples of AI uses in pharmaceutical science are:

1. Drug molecule prediction
2. Improvement of clinical trial workflows
3. Automated analysis of images and pathologies
4. Automated laboratories
5. Signal detection in pharmacovigilance
6. Supply chains management and its improvement

AI is helping pharmaceutical firms make better and more informed scientific decisions while also enhancing their agility to operate and reducing the time and effort needed to complete scientific work.

As AI technologies continue to grow, its uses in pharmaceutical science will also continue to grow.

Real World Data and Clinical Intelligence

The use of real world evidence as opposed to the traditional clinical trials is growing immensely and is being used to determine the efficacy of a treatment and the outcomes related to patients.

Health technologies and systems from EHRs to remote patient monitoring and digital therapeutics offer new opportunities for clinical decision-making and strategy development based on captured insights.

Leveraging these technologies and systems is advancing patient-centered care and enabling more flexible approaches to pharmaceuticals.

The Sustainability of Intelligent Pharmaceutical Management

Ensuring sustainability is emerging as a global priority in pharmaceuticals, and analytics continues to assist in optimizing company resources, lowering waste, and improving environmental outcomes.

Contemporary pharmaceutical manufacturing sites are deploying:

1. Energy-efficient manufacturing systems,
2. Smart resource management systems,
3. Analytics for waste reduction,
4. Management of sustainable supply chains, and
5. Innovations in green chemistry.

Achieving operational excellence and attaining environmental and corporate responsibility goals are possible through data-driven sustainability.

Innovation will be central to the ever-advancing pharmaceutical sciences, and equally important will be sustainable development.

The Future of Pharmaceutical Science

The future of pharmaceutical science is changing rapidly. With the current trend of embedding analytics into research, production, and delivery, this field is experiencing unprecedented advancement and increasing intelligent innovation.

The next generation of pharmaceutical science will include:

1. Completely autonomous labs
2. AI-enhanced drug development
3. Digital twin factories
4. Enhanced predictive healthcare
5. Global regulatory adaptive intelligence
6. Therapeutics designed to an individual's needs

Pharmaceutical companies that are able to transform analytics into pragmatic science and healthcare will be the pioneers of healthcare progress in the coming years.

Conclusion

"Analytics to Action: The Evolution of Modern Pharmaceutical Science" is an expression of the advancements in every aspect of the pharmaceutical industry. Analytics have evolved from a function to process to a driving force behind major breakthroughs in discovery and improvement of therapeutic options, as well as assurance of compliance and excellence within the industry.

Given the state of rapid development of digital technology, the prediction and gap closure of the needs of the global healthcare system will be even more significant in the future of pharmaceutical science. In this future, companies that can rapidly and efficiently derive an innovation from data will create a significant and valuable impact.

Given the current trend of changing from analytics to action, the direction of pharmaceutical science is not the only thing that will be reshaped, but the future of medicine as a whole.

Why PTFE Gaskets Are Highly Relevant to the **Biopharma Industry!!**

In advanced biopharmaceutical production, the purity of a product and the need for a material to be chemically compatible and compliant with regulations make gaskets essential. Of the materials used in gaskets, polytetrafluoroethylene (PTFE) is the preferred sealing material in high purity and aggressive processes. Due to its chemical structure and performance in bioprocessing systems, PTFE is used in single-use assemblies, stainless steel skids, CIP/SIP systems, and high-purity fluid transfer systems.

PTFE: Chemistry and Material Science

PTFE is a fluoropolymer made from tetrafluoroethylene (TFE) with a carbon backbone of fully fluorinated TFE. The bond made in an organic context from carbon to fluorine (C–F) is one of the strongest and most inert bonds made (~485 kJ/mol). In PTFE, this makes the fluorine chain a protective outer cover around the carbon inner structure, rendering the carbon chain of the PTFE polymer shielded from most chemicals.

PTFE is inert to acids, bases, oxidizers, and other solvents. It has a broad temperature stability and an extremely low coefficient of friction. Its low coefficient of friction also means PTFE is non-stick and is also hydrophobic and non-absorptive. It is also non-toxic and non-biological, making it suitable for pharmaceuticals applications of high-purity standards where interactions with the process fluids are required be minimized.

Why PTFE Gaskets are Important in Biopharma Applications

1. Chemical compatibility in multiple procedures

In biopharma procedures, strong cleaning agents (NaOH, acids) and buffers that affect pH (and organic solvents in downstream processes) are used.

With PTFE's near-complete chemical resistance, there can be no degradation, swelling, or leaching in aggressive environments.

2. Contamination and extractables/leachables (E&L) control

Since PTFE is non-reactive, non-leaching in most conditions and compatible with high-purity and sterile systems, it is excellent for critical contact surfaces, and thus, the risk of contamination (which is a key concern of regulators (FDA, EMA) is minimized.

3. Supporting CIP/SIP and sterilization

PTFE stands up to repeated steam sterilization (SIP) and chemical cleaning cycles (CIP) without compromising integrity, providing a longer service life and more reliability.

4. Adaptability

PTFE gaskets are extensively employed in bioreactors and fermenters, filtering systems, chromatographic processing skids, and even aseptic filling systems. Envelope gaskets (PTFE-lined with elastomer core) provide a fine combination of chemical and mechanical resistance for pharmaceutical flanges.

Types of PTFE Gaskets Employed in Biopharma

There are 3 important types of PTFE gaskets deployed in biopharma sector.

1. Virgin PTFE Gaskets. These gaskets are the purest PTFE and have the highest chemical resistance, making them the best choice for GMP-critical applications.

2. Filled PTFE Gaskets. These gaskets contain fillers of glass, carbon, or graphite. They have better mechanical strength and resistance to creep, although they are slightly less chemically inert.

3. Expanded PTFE (ePTFE). These gaskets are more flexible and more compressible than conventional PTFE gaskets.

4. They are more suitable for low bolt-load applications for sealing irregular surfaces and gasket face.

PTFE Gaskets are highly chemically resistant. PTFE resists nearly all industrial chemicals and is very thermally stable. It can withstand temperatures as extreme as cryogenics and high temperatures exceeding 260 °C. This enables the use of PTFE gaskets for sealing in many different industrial applications with changing temperatures.

Additionally, PTFE is chemically inert and pure, making it very suitable for the food and pharmaceutical industries, where there is no interaction with the product.

PTFE gaskets have very low friction and are very resistant to environmental and UV degradation. This makes PTFE gaskets very easy to install and provides excellent service life.

The Downsides of PTFE Gaskets

PTFE, while useful in some situations, isn't always ideal. It can be weaker and can be susceptible to creep. Softness in PTFE makes it susceptible to cold flow, and it can deform.

High-pressure systems can cause permanent deformation, leading to loss of sealing force. Compared to elastomers, PTFE has poor elastic recovery, meaning it may lack some seal when loads fluctuate.

Compared to rubber gaskets, PTFE has a higher initial cost, but the lifecycle cost can balance this. PTFE can have permeation issues where gases can pass through it at high pressures. PTFE also has radiation sensitivity, meaning, with too much radiation, PTFE can degrade, and it can also be a problem for some sterilization.

Summary of PTFE Gasket Quality Control and Testing

PTFE gasket manufacturers in the biopharmaceutical industry must provide PTFE in a quality controlled package. A gasket manufacturer must provide unfilled PTFE resin, a dimensionally correct and visually inspected material with a defect free surface. Imperfections can be caused by poor surface flatness or excessive cutting.

Precision cutting can be performed by advanced Computer Numerical Control (CNC) skiving.

PTFE gasket manufacturers will have to conduct several tests. PTFE gasket manufacturers will need to perform several tensile tests.

These will include mechanical tests for tensile strength, compression, and creep relaxation and recovery; chemical compatibility tests for aggressive chemical exposure and swelling, weight change, and degradation assessment; extractable and leachable studies test(s) and analysis via solvent extraction and gas, liquid, and inductively coupled plasma mass spectrometry that provide compliance with the FDA Title 21 Section 348 and USP Class VI and ISO 10993; Biocompatibility. In some situations, the manufacturer will be required to evaluate biocompatibility.

Manufacturers will have to produce PTFE gaskets in a clean area.

These areas will undergo bioburden testing, air particulates testing, TOC testing, and microbial testing.

Comparison with Other Gasket Materials in Biopharma

1. **PTFE vs EPDM/Silicone**: PTFE offers far superior chemical resistance, while elastomers provide better elasticity.
2. **PTFE vs Viton (FKM)**: Viton approaches PTFE in chemical resistance but may still degrade in certain solvents.

Property	PTFE	EPDM	Silicone	Viton (FKM)	FFKM
Chemical Resistance	Excellent	Moderate	Moderate	High	Near PTFE
Temperature Range	Very high	Moderate	High	High	Very high
Elasticity	Low	High	High	Moderate	Moderate
Extractables Risk	Very low	Moderate	Moderate	Moderate	Very low
Cost	Medium-high	Low	Medium	High	Very high

3. **PTFE vs FFKM**: FFKM matches or exceeds PTFE performance but at significantly higher cost, limiting widespread adoption.

Strategic Perspective: PTFE in the Future of Bioprocessing

Due to the continuous development of single-use systems and continuous manufacturing using highly potent active pharmaceutical ingredients (APIs), there is a growing need for materials that are chemically inert and have low leach-ability.

In this regard, advanced PTFE (particularly ePTFE and composite envelope gaskets) is likely to be a key material for biopharma sealing technology. Moving forward, hybrid solutions—using a combination of elastomeric cores or engineered fillers along with PTFE—may address some of the remaining challenges with regard to mechanical limitations.

In biopharmaceutical manufacturing processes, PTFE gaskets are a vital technology.

Their outstanding chemical inertness, thermal stability, and suitability for high-purity systems ensure that processes are both reliable and that products are safe and uncompromised.

Although issues such as creep and cost need to be accommodated through design and materials selection (e.g., filled PTFE or envelope designs), PTFE continues to better meet the needs of the most demanding bioprocesses in the majority of cases.

For biopharma engineers and procurement teams, the gasket material selection is equal to a choice of quality and compliance. PTFE is still one of the safest and most positive options.

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Caption: Biocompatible switching valves

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CRM	Application	Pack Size
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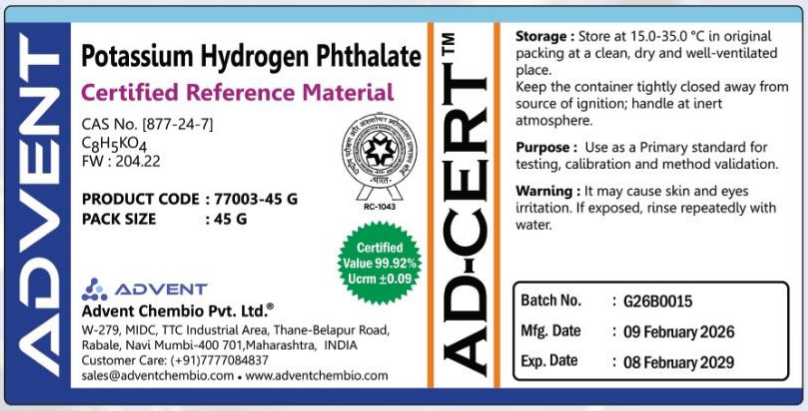
Sodium Carbonate	**Acid-base titration**	45 g
Sodium Chloride	**Argentometric titration**	45 g
Potassium Chloride	**Conductivity / Calibration**	45 g
Potassium Dichromate	**Redox titration**	45 g

APPLICATION AREAS

- Pharmaceutical Quality Control
- Research & Development Laboratories
- Analytical Method Validation
- Environmental & Chemical Testing etc..
- Calibration of Volumetric Solutions



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Control Quality, Costs & Compliance with **Good Weighing Practice**

In today's fast-paced industrial landscape, precision and reliability in weighing processes are paramount. Whether in a laboratory, a factory, a manufacturing facility, or even a quality assurance department, the ability to choose the appropriate balance/scale, check if it is fit for purpose, and run an effective quality management system might have a positive influence on your business operations.

We at **METTLER TOLEDO** recognize these issues, which is why we developed what is known globally as the Good Weighing Practice™ (GWP®). This system standard provides businesses both large and small with confidence in the safe selection, calibration, and routine use of their balances and scales. The principles of Good Weighing Practice (GWP®) are designed to ensure that your weighing devices operate at peak performance and deliver trustworthy results.

Here's how GWP® can transform your weighing processes:

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2. Reduce Costs: Poor weighing practices can result in wasted material and expensive re-works. The implementation of GWP® brings your weighing processes to peak efficiency, while also improving site productivity.

This means fewer errors on the weighing process, which leads to less waste, less cost, and better use of resources.

3. Full Compliance

Following industry regulations and standards is critical for all businesses. GWP® at all times ensures your weighing procedures are audit-proof.

Applying the right quality management processes ensures the measurement activities stay compliant and reduces the risk of penalties or disruptions.

Implementing Good Weighing Practice

The implementation of GWP® is a systematic process that starts with a fit-for-purpose check. This check is carried out during the selection of your weighing devices. This guarantees that for the intended weighing application, the appropriate devices are used. Calibration and setting of the standard operating procedures then follows to guarantee order and reliability.

Selection: Weighing applications have a variety of requirements. Care must be taken to ensure the appropriate balance/scale is used.

The weighing device should be capable of withstanding the operating environment and should be within the application requirements of maximum capacity and resolution.

Calibration: Weighing devices must be calibrated regularly to maintain accurate measurement. Calibration should be done within a determined frequency based on the use of the device and the requirements of the regulatory bodies.

Routine Operation: The weighing devices should be used and maintained according to the standard operating procedures. This includes training staff on best practices to minimize errors and ensure consistent results.

Conclusion

Incorporating Good Weighing Practice (GWP®) into your operations is a strategic decision that can lead to enhanced quality, reduced costs, and assured compliance. By trusting the expertise of METTLER TOLEDO and implementing GWP®, you can take control of your weighing processes and achieve results you can depend on.

About METTLER TOLEDO

METTLER TOLEDO is a leading global manufacturer of precision instruments. The Company is the world's largest manufacturer and marketer of weighing instruments for use in laboratory, industrial and food retailing applications. The Company also holds top-three market positions for several related analytical instruments and is a leading provider of automated chemistry systems used in drug and chemical compound discovery and development. In addition, the Company is the world's largest manufacturer and marketer of metal detection systems used in production and packaging. Additional information about METTLER TOLEDO is available at www.mt.com.

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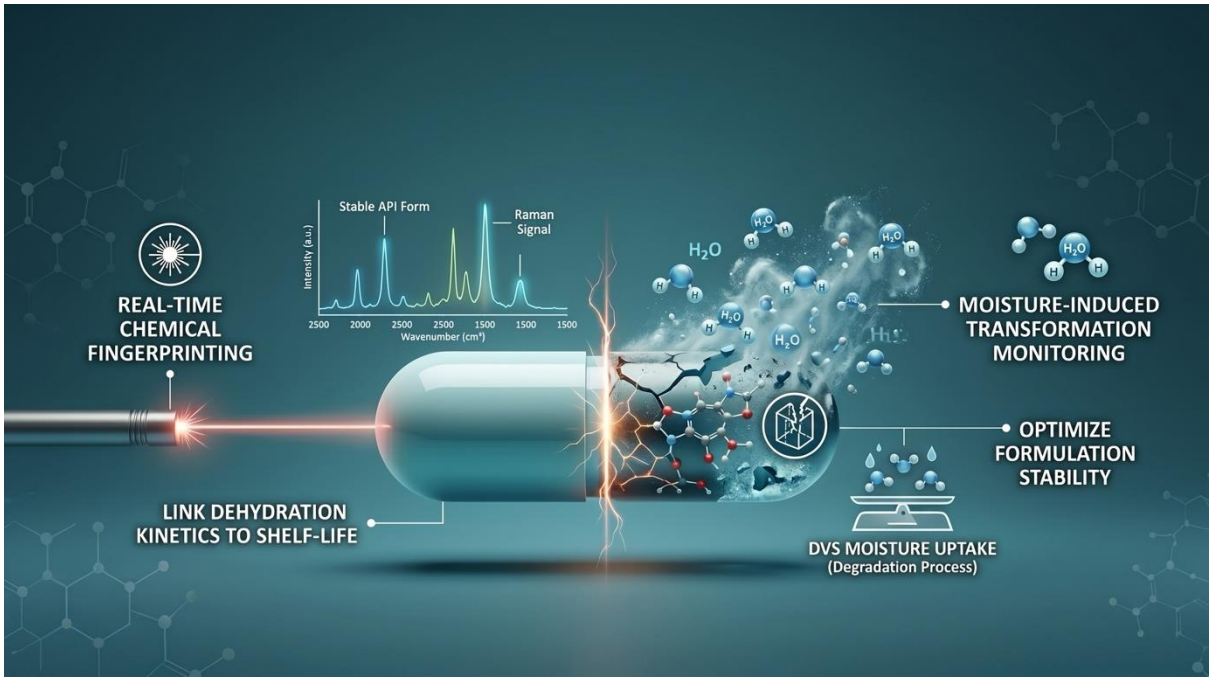

Time Analysis of **Moisture-Induced Pharmaceutical Transformations Using Raman & DVS**

In pharmaceutical drug development, formulations must provide several assurances including stability, efficacy, and performance. Especially when sensitive to varying environmental factors, active pharmaceutical ingredients (APIs) can be impacted by chemical degradation, physical changes, or diminished therapeutic effect due to moisture and temperature.

For example, degradation pathways like hydrolysis, can happen faster when there is moisture present, because it acts as a reaction medium that can enhance the breakdown. Also, moisture can act as a plasticizer, which can change the properties of solid formulations and can also impact stability and performance.

Unlocking Stability: The Role of Moisture in Pharmaceutical Performance

The improved analytical method that combines Dynamic Vapour Sorption (DVS) and Raman spectroscopy provides an opportunity to study the effects of moisture on pharmaceutical compounds to trace the changes it induces and adjust the pharmaceutical formulation correspondingly.

Compared to conventional methods such as Differential Scanning Calorimetry (DSC) and X-ray Powder Diffraction (XRPD) that offer images of the physical structures of the samples and the changes induced only by the heating of the samples, this combined method can offer timely physical and chemical images of the changes of the samples that occur during moisture sorption. DVS can provide a timely physical image of the moisture sorption and spectral data of the changes that occur when the moisture is absorbed. The combined method can provide greater insight to the complexities of moisture induced, chemical and physical changes to pharmaceuticals. Formulation improvements can result when the complex moisture induced degradation of the formulations is understood.

The Importance of Moisture in Pharmaceuticals Pharmaceuticals are affected by water vapour in several ways, including, but not limited to:

1. Surface adsorption or chemisorption
2. Bulk absorption
3. Plasticization

4. Degradation due to chemical reactions (e.g., hydrolysis)

Moisture interactions cause multifaceted changes to drugs that may be of a physical, chemical, or biological nature. During the first few stages of moisture sorption, there is a process of surface adsorption and chemisorption. As the process of moisture sorption continues, there is bulk moisture absorption that may result in a solid matrix swollen with moisture, that undergo phase transitions or changes in crystallinity. Once moisture is absorbed, the glass transition temperature (Tg) decreases, causing the matrix to gain fluidity. During this process, solid state transformations occur along with the accelerated chemical decomposition of the material. Ultimately, the physical and chemical changes diminish the potency of the solid state active pharmaceutical ingredient, compromising stability and the intended shelf life of the product.

There are several reasons for the understanding of moisture interactions.

1.Reduction of shelf-life due to moisture-induced degradation is overcome to improve stability.

2.Moisture-absorbing formulations are achieved through careful consideration of excipients and solid-state properties of the formulation.

3.Retention of the physical and molecular therapeutic function of API ensures the intended purpose of drug diffusion is achieved.

4.Optimal environmental control and moisture-resistant packaging sustain protection of the product.

Examining the ways in which moisture is absorbed leads to the discovery of key areas that set the boundary for design controlling conditions to protect the product and predict its shelf life.

Subclassing in Context of ASA and Citric Acid Monohydrate

This research was conducted on two representative pharmaceuticals:

1. **Acetylsalicylic Acid (ASA),** which is Water-In-Sensitive. It undergoes hydrolytic degradation in the moist presence of water into salicylic acid and acetic acid.

2. **Citric Acid Monohydrate** is frequently used in pharmaceutical formulations and is also moisture sensitive. It undergoes the loss of water and induces crystallization losing its functional properties.

The comparison of Acetylsalicylic Acid (ASA) and Citric Acid Monohydrate is valuable because they represent two distinct moisture-driven transformation pathways: ASA undergoes chemical degradation via hydrolysis, while citric acid monohydrate exhibits reversible solid-state phase transitions (hydrate–anhydrate).

Studying both systems demonstrates that the combined DVS–Raman approach can effectively capture both kinetic (reaction-driven) and thermodynamic (equilibrium-driven) processes, broadening its applicability across pharmaceutical stability challenges.

Key Objective

The primary objective is to understand the changes that take place over a specified time frame. This time frame is to be altered in order to view differing temperature and moisture conditions. This study uses DVS and Raman spectroscopy to directly compare moisture-driven transformations in Acetylsalicylic Acid (ASA) and Citric Acid Monohydrate.

By integrating gravimetric sorption data with real-time molecular spectroscopy, the study aims to distinguish kinetic hydrolytic degradation in ASA from thermodynamically driven hydrate–anhydrate transitions in citric acid monohydrate.

Analytical Techniques

The combination of advanced analytical techniques enables a comprehensive investigation of moisture-driven behavior using Dynamic Vapour Sorption (DVS) in conjunction with Raman spectroscopy:

Dynamic Vapour Sorption (DVS):

A technique that can:

1.Measure the absorption and release of water with extreme sensitivity.

2.Precisely replicate the real-world influences of location and environmental context by controlling the relative humidity (RH) and temperature.

3.Facilitate kinetic measurements of moisture in different interactions.

DVS data can create sorption isotherms and describe the relationship between the uptake of moisture and the relative humidity and provide profiles of absorption–desorption hysteresis that reveal the behavior of materials in a moisture cycle.

The kinetic profiles can determine the change of a material due to crystallization or a material becoming completely amorphous, and can also determine if the change is reversible or irreversible. These profiles can be utilized to provide insight on the stability of a material, and the way the material will perform in different environmental scenarios.

Raman Spectroscopy:

1.Accounts for the changes in molecular, and structural transformations, by providing spectroscopic and molecular vibrational data.

2.Enables identification of chemical transformations such as hydrolysis and solid-state transitions.

3.Correlates with mass uptake on the DVS for molecular changes and moisture behavior in a comprehensive manner.

Raman spectroscopy can be used to provide insight into thermal-induced molecular, structural changes, and also phase changes as they are seen spectroscopically. These phase changes can provide insight on whether the change transformations occur from changes in crystallinity, chemical composition or alterations in molecular structure.

Many of these transitions, when performed on active DVS, can be directly linked to the level at which these transitions are induced, such as different relative humidity (RH) points.

Instrument Features

1. B&W Tek iRaman Plus
2. 784.96 nm laser excitation
3. 65–3350 cm–1 spectral range
4. Improved sensitivity and stability from TE-cooled CCD detection

Real-time monitoring of gravimetric mass change detection alongside the study of the morphology of the sample through moisture absorption.

Design of Experiments

ASA Study

1. Climatic chamber set to 90% RH at 25 °C
2. Drying phase temperature increased to 50 °C
3. 60-hour monitoring phase followed by 24-hour drying phase
4. To observe thermal and chemical structural changes, spectra are taken at set integration time

This experiment setup is based on a real stability study, whereby a temperature and humidity chamber is employed to quickly obtain the effects of time on the stability of the product. Moisture induced hydrolysis along with structural and mechanical changes poses a real threat to the stability of pharmaceuticals, and a study of this nature is important to set the boundaries for storage conditions and packaging.

Citric Acid Monohydrate

The stepwise temperature increase study, ranged from 10 °C to 50 °C, with 5 °C intervals hypothesized to ascertain moisture induced changes on the sample and the relevant thermal range. These studies would allow the deep understanding of phase transitions, with a specific interest on transitions that involve changes of the sample moisture, i.e. dehydration and subsequently, rehydration.

1. The equilibration and observation of kinetic changes were assessed over 720 minutes per each temperature step.

2. 0%, 20%, 40%, 60%, and 80% relative humidity (RH) were used to investigate moisture-dependent behavior.

3. Raman spectra were collected over 360 minutes in order to study the changes on the micro and macro scale of the molecules when hydrated and dehydrated.

DVS data provided detailed sorption isotherms and mass change profiles across the humidity range, highlighting moisture uptake and release behavior at each temperature step. The Raman spectra revealed the structural shifts of the hydrated and dehydrated forms. This enabled comparisons to be made of the mass change with the changes at the molecular level.

The data provided were used to determine, with high level of precision, the points of phase transition, and to measure the reversibility of the changes, taking into account the different environmental conditions.

Moisture-Driven Degradation of ASA

1. Hydrolysis degradation pathways can be confirmed through the identification of chemical transformations by Raman spectroscopy.

2. The effects of volatile degradation products were evident, and the rate of apparent volatile degradation increased substantially at elevated temperatures and humidity.

This demonstrates the volatile sensitivity of ASA and the necessity of maintaining specific environmental conditions.

These observations confirm moisture is the predominant cause of hydrolytic degradation of ASA, and is at its greatest potential when the moisture is coupled with elevated temperature and relative humidity of approximately 90% RH at 25 °C, with autoclave conditions at 50 °C. DVS data suggests that the increase in water vapor that is absorbed is contiguous with an increase in the rate at which water is sorbed, and the average rate of hydrolysis increases.

The deviations in sorption and the presence of hysteresis may indicate the onset of phase-related changes or structural alterations in the material.

Coupling the DVS and the Raman spectroscopy data, we can see that chemical degradation is coupled with physical degradation, and is at its greatest potential when the pressures and temperatures are in the conditions described, and at the environmental conditions described with the uncertainty in the control of the environment with the storage and handling.

Monohydrate Dehydration Behavior

1. The temperature and relative humidity determine the transition of monohydrates to anhydrites.

2. High humidity means high temperatures needed to dehydrate monohydrates showing the moisture stabilizing the hydrated form.

3. Solid state changes describe the behavior of the drug and how it will control and influence how the drug can be released and its performance and describe the dissolution.

This illustrates that it takes more than temperature to dehydrate a sample. It takes a careful combination of temperature and humidity. DVS showed a different profile of mass loss to reflect different stages of dehydration. Raman confirmed structural changes to hydrated and anhydrous. Controlling the temperature and humidity to define the stability of the formulation and predict the performance of the drug in real world conditions is very important. This will ensure that the drug will always perform to the level expected.

Improved Drug Stability Predictions through Kinetic Analyses of Transformations

1. Finding new degradation pathways reduced by determining mechanisms for transitions.

2. Structural and kinetic changes of transformations lessens the predictabilities of stability of the sample.

3. Identification of moisture-induced transformations at the early stages allows timely interventions.

4. Regulatory affairs and compliance are supported by presented and comprehensive evidence for the product's consistent and stable quality.

The integrated analytical strategy captures gravimetric sorption and detail structural changes on a molecular level. This will enhance the ability to directly guide excipient compatibility studies.

It captures moisture-sensitive interactions between APIs and components of a formulation. It will enhance the ability to select moisture resistant formulations and offers insight on hygroscopity and phase behavior to optimize packaging systems. While capturing the critical moisture barrier beyond and within, it will hopefully assist educated choices on formulation design, choice of materials, and moisture content storage strategies. The integration of DVS and Raman spectroscopy for simultaneous physical and chemical characterization of pharmaceutical grade solid-state materials can yield novel mechanistic insights on moisture-induced changes that are beyond that of existing traditional methods.

Traditional approaches often yield isolated thermal or structural aspects, whereas this provides a framework to relate sorption behavior to molecular dynamic changes in real-time. This would enable researchers to relate humidity induced mass and chemical or phase change transformations in a more holistic manner, improving the overall outcomes of formulations, stability of the final products and the management of the entire lifecycle of the product.

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For more information on pharmaceutical material transformations, and how the techniques discussed here can be employed to predict and optimize this behavior, go to www.surfacemeasurementsystems.com

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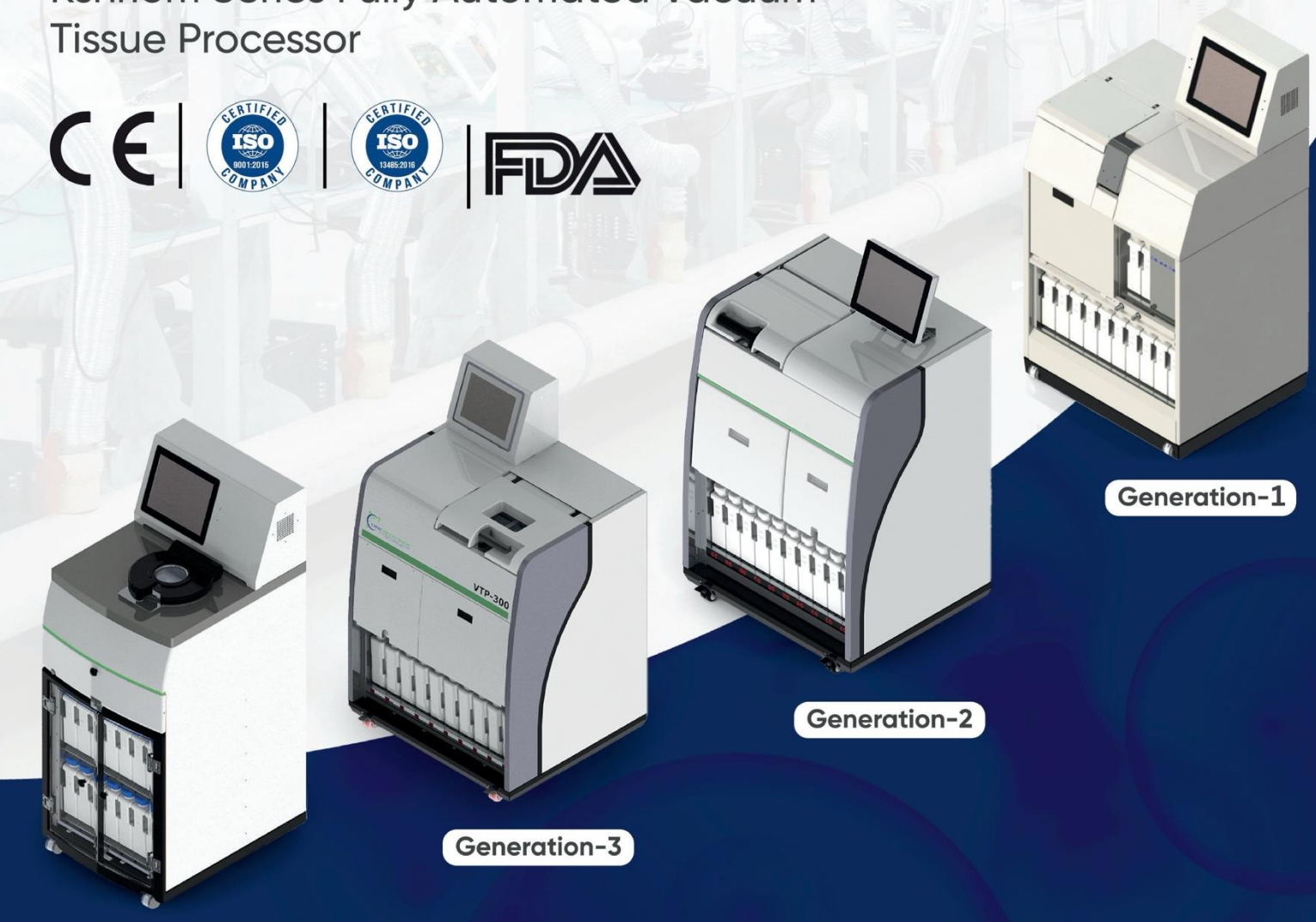

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Emcure Pharma receives 7 US FDA observations for Sanand formulations facility in Gujarat

Pune-based drug firm Emcure Pharmaceuticals Ltd on Saturday (May 16) said the United States Food and Drug Administration (US FDA) conducted a current Good Manufacturing Practices (cGMP) inspection at its formulations facility in Sanand, Ahmedabad, Gujarat, from May 6 to May 15, 2026.

Emcure Pharmaceuticals Ltd
SUCCESS THROUGH INNOVATION

At the conclusion of the inspection, the company received a Form 483 with seven observations. The company said the observations are procedural in nature.

Emcure Pharmaceuticals added that it is addressing the observations comprehensively and will respond to the US FDA within the stipulated timeframe. The inspected facility is located at G.I.D.C., Taluka-Sanand, Ahmedabad, Gujarat.

A Form 483 is a list of observations made during the inspection and is issued by the USFDA inspectors after the completion of the inspection.

The inspector will communicate and explain these observations to the supplier during the closing conference. But a Form 483 does not represent a final FDA determination regarding the facility's GMP compliance.

Post Form 483 is issued, the company is given 15 days to submit its response to the USFDA explaining what steps the company will take to resolve the observations made by the USFDA.

Fourth Quarter Results

Net profit for the quarter rose 29% year-on-year to ₹243 crore from ₹189 crore. Revenue increased 16.7% to ₹2,469.7 crore compared to ₹2,116.2 crore in the year-ago period, reflecting healthy traction across key markets. EBITDA grew 19.2% to ₹479.5 crore, while margins improved marginally to 19.4% from 19% a year earlier.

The company's international business remained the key growth driver, with sales rising 25.7% YoY to ₹1,493 crore, supported by base business ramp-up and new product launches. Domestic sales came in at ₹977 crore, up 5.2% YoY, impacted by softer performance in the Zuventus portfolio and organisational restructuring.

Alembic Pharma gets USFDA tentative approval for generic prostate cancer drug

Alembic Pharmaceuticals Ltd on Thursday said it has received tentative approval from the US health regulator for its generic version of Darolutamide tablets indicated for treatment of prostate cancer.

The tentative approval by the U.S. Food and Drug Administration (USFDA) is for the Abbreviated New Drug Application (ANDA) of Darolutamide tablets of strength 300 mg, Alembic Pharmaceuticals said in a statement.

The approved ANDA is therapeutically equivalent to the reference listed drug product Nubeqa Tablets, 300 mg, of Bayer AG, it added.

Darolutamide is indicated for the treatment of adult patients with different types of prostate cancer in combination with docetaxel.

Citing IQVIA data, the company said Darolutamide tablets 300 mg had an estimated market size of USD 3,155 million in the 12 months ended March 2026.

Caplin Steriles Receives USFDA Approval for Generic Foscarnet Sodium Injection for US Market

Caplin Steriles Limited (CSL), a wholly owned subsidiary of Caplin Point Laboratories Limited, has received final approval from the United States Food and Drug Administration (USFDA) for its Abbreviated New Drug Application (ANDA) for Foscarnet Sodium Injection (6000 mg/250 mL Infusion Bag).

The approval enables the company to market the generic version of Foscavir Injection in the United States.

The approved product is therapeutically equivalent to the reference listed drug manufactured by Clinigen Healthcare Ltd and is used in the treatment of cytomegalovirus (CMV) retinitis in patients with AIDS as well as herpes simplex virus (HSV) infections in immunocompromised individuals. The approval marks another significant milestone in Caplin Steriles' growing portfolio of regulated-market injectable products and further strengthens the company's position in the sterile pharmaceutical manufacturing segment.

According to IQVIA data, the US market for Foscarnet Sodium Injection generated sales of approximately USD 15 million during the twelve-month period ending March 2026. Industry analysts believe demand for antiviral injectable therapies continues to remain stable due to ongoing treatment requirements in immunocompromised patient populations.

Caplin Steriles stated that the approval reflects the company's sustained focus on expanding its presence in the US pharmaceutical market through a combination of complex injectables, ophthalmic products, and specialty formulations. The company has steadily increased its regulatory footprint over the past several years through investments in manufacturing infrastructure, product development, and compliance systems. CSL currently operates manufacturing facilities approved by major international regulatory agencies, including the USFDA, EU-GMP, ANVISA, and INVIMA.

Caplin Steriles has developed and filed 54 ANDAs independently and in partnership with other organizations for the US market. With the latest approval, the company now holds 55 approvals, including acquired ANDAs, further strengthening its pipeline in regulated pharmaceutical markets.

The company is also actively developing a portfolio of more than 55 injectable and ophthalmic products, including both simple and complex formulations, that are expected to be filed over the next four years. These products are intended to support the company's long-term strategy of expanding its presence across highly regulated international markets.

In addition to the United States, Caplin Steriles has filed and received approvals for multiple pharmaceutical products in markets such as Australia, Canada, Mexico, Chile, Hong Kong, Malaysia, the UAE, Saudi Arabia, and South Africa. Parent company Caplin Point Laboratories Limited has built a strong business model focused primarily on emerging markets in Latin America and Africa. The company manufactures a wide range of finished dosage forms through advanced manufacturing facilities and has demonstrated consistent financial growth over the past fifteen years.

Caplin Point has received several recognitions for its performance and business growth, including repeated inclusion in Forbes Asia's "200 Best Under a Billion" list and awards for emerging business excellence from leading industry organizations. The company's expansion strategy has increasingly focused on regulated markets and specialty product categories through subsidiaries such as Caplin Steriles and Caplin One Labs Limited (COL).

Caplin One Labs, which operates an oncology-focused manufacturing unit in Kakkalur, Tamil Nadu, is currently in its second year of operations and is engaged in developing generic and specialty pharmaceutical products for both regulated and semi-regulated markets. The unit currently holds five approved ANDAs for injectable products and continues to work on additional development projects across oncology and specialty therapeutic categories.

Akums Reports Q4 FY26 and Full Year FY26 Results with Healthy Top Line and Strong EBITDA Growth; Board Recommends Dividend

Akums Drugs & Pharmaceuticals Ltd., India's largest Contract Development and Manufacturing Organisation (CDMO), announced its financial results for the fourth quarter and the full year ended March 31, 2026. The company delivered a steady performance during Q4 FY26, with healthy revenue growth and improved operating profitability driven by its core domestic CDMO business.

For Q4 FY26, Akums reported an operating revenue of Rs. 1,158 crore, reflecting a 9.7% year- on-year growth compared to Rs. 1,056 crore in Q4 FY25. Adj EBITDA stood at Rs. 152 crore, registering a 61.6% year-on-year increase from Rs. 94 crore in the same quarter last year. Adj EBITDA margin improved to 13.1% from 8.9%. Adj PAT stood at Rs. 83 crore, compared to Rs. 35 crore in Q4 FY25, reflecting a 135% year-on-year growth, with Adj PAT margin improving to 7.0% from 3.3%.

On a full-year basis, FY26 operating revenue stood at Rs. 4,359 crore, growing 5.9% year-on- year over Rs. 4,118 crore in FY25. Adj EBITDA increased 13.3% year-on-year to Rs. 522 crore, while Adj PAT grew 27.3% year-on-year to Rs. 276 crore.

The CDMO segment was the key growth driver for Akums during Q4FY26. CDMO revenue grew to Rs. 952 crore, compared to Rs. 840 crore in Q4 FY25. CDMO EBITDA increased 54.9% year-on-year to Rs. 137 crore, while EBITDA margin improved to 14.4% from 10.6%.

This performance was driven by continued customer engagement, better capacity utilisation and focused execution.

The Domestic Branded Formulations business remained stable during the quarter, with Q4 FY26 revenue at Rs. 102 crore compared to Rs. 104 crore in Q4 FY25. EBITDA remained steady at Rs. 22 crore. For the full year, the segment showed improved profitability, with revenue growing 2.9% year-on-year to Rs. 446 crore and EBITDA increasing 17.0% to Rs. 90 crore.

The International Branded Formulation business saw some moderation in quarterly revenue, with Q4 FY26 revenue at Rs. 36 crore compared to Rs. 40 crore in Q4 FY25. For FY26, revenue remained flat at Rs. 143 crore, though EBITDA increased 32.3% year-on-year to Rs. 36 crore.

Trade generics turned a corner with EBITDA becoming positive at Rs 1.4 crore in Q4 FY 26. For FY26, EBITDA loss decreased sharply to Rs 10 crore from Rs 28 crore in FY25.

During FY26, Akums achieved significant progress towards becoming a global pharmaceutical company. The company made its first commercial supply of formulations to Europe, strengthened its regulated market presence with EU GMP certifications for its Oral Solids and Oral Liquids facilities, and received its first UK MHRA approval for Rivaroxaban. Akums injectable plant also received Brazil ANVISA. The ground-breaking of the Zambia pharmaceutical plant marked an important milestone in the company's international journey.

The Board also recommended final dividend for the year FY25-26 of INR 1 per equity share (50% of the face value of INR 2) and a special dividend of INR 2 per equity share (100% of the face value of INR 2).

Commenting on the performance, **Mr. Sanjeev Jain, Managing Director, Akums Drugs & Pharmaceuticals Ltd**., said, "*FY26 has been a year of steady progress for Akums. We delivered healthy growth in revenue and profitability while continuing to build capabilities for the long term. Our regulatory milestones, international developments and strong domestic performance reflect our focus on building Akums as a global pharmaceutical company and a trusted partner for our clients.*"

Mr. Sandeep Jain, Managing Director, Akums Drugs & Pharmaceuticals Ltd., added, "*The Q4FY26 and full year performance showed improvement across key operational parameters. Our CDMO business continued to perform well as we remain focused on better capacity utilisation, cost discipline and future growth. We are working on multiple digitization and automation initiatives which will deliver long-term value for the organization.*"

While the overall performance remained positive, the API business continued to face pricing pressure. During Q4 FY26, API revenue was Rs. 41 crore compared to Rs. 50 crore in Q4 FY25, with an operating loss of 12 crore. On a full-year basis, API revenue was lower year-on-year, though the EBITDA loss marginally reduced from Rs. 44 crore in FY25 to Rs. 40 crore in FY26. The company continues to focus on portfolio optimization, cost control and operational efficiency to support sustainable growth going forward.

Aurobindo Pharma arm gets CDSCO marketing nod for Bevqolva

Aurobindo Pharma Ltd. on Saturday, May 16, said its wholly-owned subsidiary CuraTeQ Biologics Pvt. Ltd. has received regulatory approval for Bevqolva.

The company said the Central Drugs Standard Control Organization (CDSCO) has granted marketing authorization under Form CT 23 for the bevacizumab biosimilar for metastatic carcinoma of the colon or rectum.

The authorization permits manufacture at CuraTeq's facility in Hyderabad and marketing of Bevqolva in 100mg/4ml and 400mg/15ml vial presentations, Aurobindo Pharma said.

On another note, last week, Aurobindo Pharma said the US drug regulator classified its Unit-VII facility in Telangana as 'voluntary action needed' (VAI).

The facility manufactures oral solid dosage products. The USFDA had inspected it from January 28 to February 10, 2026, following which it issued a Form 483 with nine observations.

Aurobindo Pharma said it received the establishment inspection report (EIR) last week classifying the facility as VAI and said the USFDA had concluded the inspection and closed the matter.

A VAI classification indicates that while objectionable conditions were found during inspection, the regulator does not recommend or undertake administrative or regulatory action at the facility.

Shares of Aurobindo Pharma ended the previous session flat at ₹1,510.3 apiece. The stock has risen 8.9% in the past month and 26.6% this year, so far.

Sun Pharmaceutical Industries Expands AI-Driven Manufacturing Network Across Southeast Asia

In a major development for the regional pharmaceutical sector, Sun Pharmaceutical Industries has announced a strategic expansion of its AI-powered pharmaceutical manufacturing and quality monitoring systems across India, Thailand, Vietnam, and Malaysia. The initiative is aimed at improving batch consistency, reducing manufacturing deviations, and accelerating global regulatory compliance for exports to Europe and the United States.

The company revealed that advanced predictive analytics and automated inspection platforms will be integrated into multiple production facilities over the next 18 months. Industry analysts believe this move could significantly strengthen Southeast Asia's position as a preferred pharmaceutical manufacturing destination amid ongoing global supply chain diversification.

Executives from Siemens Healthineers and Rockwell Automation are reportedly collaborating on digital infrastructure support for the initiative, particularly in smart factory integration and industrial automation systems for sterile manufacturing operations.

Experts suggest the expansion could also create new opportunities for regional CDMOs and pharmaceutical packaging providers. Demand for advanced cleanroom systems, laboratory automation, and digital validation technologies is expected to rise sharply following the announcement.

The development has generated strong interest among investors and healthcare stakeholders, with several industry observers calling it one of the most significant pharma manufacturing modernization projects announced in Asia this year.

Dr. Reddy's Laboratories Announces Major Biosimilar Collaboration in Singapore

Dr. Reddy's Laboratories has entered into a new biosimilar development partnership with research institutions in Singapore to accelerate affordable biologics production for oncology and autoimmune disorders. The collaboration focuses on next-generation monoclonal antibody development and regional clinical research expansion.

Singapore's growing reputation as a biotechnology innovation hub has attracted multiple pharmaceutical companies seeking advanced R&D ecosystems and strong regulatory support. The new collaboration is expected to boost translational research activities and strengthen regional biologics manufacturing capabilities.

The initiative also includes investments in analytical characterization laboratories, cell culture process optimization, and advanced bioprocess monitoring systems. Experts believe these capabilities will improve production efficiency while reducing development timelines for biosimilar therapies.

Healthcare economists across Southeast Asia have welcomed the partnership, highlighting the growing need for affordable biologic treatments in emerging healthcare markets. Rising cancer incidence and increasing healthcare access continue to drive biosimilar demand across the region.

Industry observers expect additional partnerships between Indian pharmaceutical manufacturers and Southeast Asian biotech institutes over the coming months as companies seek to expand innovation networks and clinical development pipelines.

Cipla Launches Respiratory Care Expansion Program Across ASEAN Markets

Cipla has unveiled an ambitious respiratory healthcare expansion initiative targeting Indonesia, the Philippines, and Vietnam. The program focuses on improving access to inhalation therapies, asthma management solutions, and chronic respiratory disease awareness programs.

The company plans to collaborate with hospitals, diagnostic centers, and physician networks to support early respiratory disease detection and patient education. Demand for respiratory therapies has increased significantly in urban Southeast Asian regions affected by pollution and changing environmental conditions.

To support the expansion, Cipla is reportedly strengthening its regional distribution and cold-chain logistics infrastructure. New partnerships with digital healthcare platforms are also expected to improve patient adherence and remote monitoring capabilities.

Medical technology providers including Philips and ResMed are expected to play a supporting role through connected respiratory monitoring solutions and sleep disorder management technologies.

Healthcare leaders believe the initiative could significantly improve chronic respiratory disease management standards in underserved Southeast Asian communities while strengthening preventive healthcare awareness.

Biocon Strengthens Insulin Manufacturing Capacity for Asian Markets

Biocon has announced plans to enhance insulin production capacity to meet rising diabetes treatment demand across India, Malaysia, Indonesia, and Thailand. The company aims to improve regional access to affordable insulin therapies and strengthen supply resilience.

The expansion includes investment in advanced biologics manufacturing technologies, automated filling lines, and upgraded cold-storage logistics systems. Industry experts note that diabetes prevalence continues to rise rapidly across Southeast Asia due to changing lifestyles and urbanization.

Analytical testing capabilities and quality assurance infrastructure are also being upgraded to align with stricter international regulatory expectations. The company is reportedly working closely with regional healthcare authorities to streamline product registrations and market access.

Several hospital procurement groups across Southeast Asia are expected to benefit from improved insulin supply stability and cost efficiency. Healthcare policymakers have emphasized the importance of regional manufacturing security for essential medicines.

Analysts believe the move positions Biocon as a major contributor to long-term diabetes care accessibility initiatives throughout the ASEAN healthcare ecosystem.

GSK Expands Vaccine Research Collaborations in India and Thailand

GSK has announced expanded vaccine research partnerships with healthcare institutions in India and Thailand focusing on infectious disease surveillance, next-generation vaccine development, and clinical trial acceleration.

The initiative aims to strengthen regional preparedness against emerging infectious diseases while improving vaccine accessibility across densely populated urban and rural regions. Experts say Southeast Asia remains a critical focus area for infectious disease monitoring due to increasing population mobility and climate-related health risks.

The collaboration will support advanced genomic sequencing programs, digital epidemiology platforms, and enhanced cold-chain monitoring technologies. Several public health organizations have welcomed the investment in regional healthcare resilience.

Research centers associated with Indian Council of Medical Research and leading Thai medical universities are expected to participate in data-sharing and vaccine efficacy evaluation programs.

Industry observers believe multinational pharmaceutical companies will continue increasing research investments in Southeast Asia as governments strengthen healthcare infrastructure and biomedical innovation ecosystems.

Aurobindo Pharma Accelerates Green Pharmaceutical Manufacturing Initiative

Aurobindo Pharma has launched a large-scale sustainability and green manufacturing initiative aimed at reducing carbon emissions and water consumption across its pharmaceutical production facilities in India and Southeast Asia.

The program includes adoption of energy-efficient manufacturing systems, solvent recovery technologies, wastewater recycling infrastructure, and smart energy monitoring platforms. Sustainability has become a major focus area for pharmaceutical exporters facing growing environmental compliance expectations from international regulators.

AUROBINDO

Environmental consultants and industrial automation firms are reportedly assisting the company in implementing digital environmental monitoring systems and real-time process optimization technologies to reduce operational waste.

Industry experts suggest green pharmaceutical manufacturing could become a major competitive differentiator for Asian drug manufacturers seeking partnerships with global healthcare companies and institutional buyers focused on ESG compliance.

The initiative reflects a broader transformation underway in the pharmaceutical sector, where sustainability, automation, and regulatory transparency are increasingly shaping long-term manufacturing strategies across Southeast Asia and India.

Torrent Pharmaceuticals Eyes Major Southeast Asia Acquisition to Expand Specialty Portfolio

Torrent Pharmaceuticals is reportedly in advanced discussions to acquire a mid-sized specialty pharmaceutical company in Southeast Asia as part of its aggressive international expansion strategy. The move is expected to strengthen the company's presence in cardiology, diabetes, and CNS therapeutics across ASEAN markets.

Industry insiders suggest the acquisition could significantly improve Torrent's regional distribution capabilities while enhancing access to local hospital procurement networks and private healthcare chains. Analysts believe the company is targeting markets with rapidly growing middle-class healthcare spending.

The proposed expansion aligns with the broader trend of Indian pharmaceutical companies increasing investments in emerging Asian healthcare ecosystems. Regulatory harmonization efforts within ASEAN are also making cross-border pharmaceutical business operations more attractive.

Several investment banking firms and healthcare consultants are believed to be involved in evaluating manufacturing assets, commercial portfolios, and regulatory approvals associated with the potential acquisition.

Market experts predict the deal could trigger additional consolidation activity within the Southeast Asian pharmaceutical sector, particularly among companies focused on branded generics and specialty therapeutics.

Lupin Expands Contract Manufacturing Partnerships Across Vietnam and Indonesia

Lupin has announced new contract manufacturing and supply agreements with healthcare distributors and regional pharmaceutical companies in Vietnam and Indonesia.

The expansion is aimed at strengthening local production partnerships and improving supply chain flexibility.

The company is focusing heavily on anti-infectives, respiratory medicines, and chronic care therapies, which continue to witness strong demand across Southeast Asian healthcare markets.

Industry observers note that regional governments are increasingly encouraging local pharmaceutical manufacturing collaborations.

As part of the initiative, Lupin plans to expand technology transfer capabilities and invest in regulatory support infrastructure for ASEAN markets. The company is also enhancing digital supply chain tracking systems to improve inventory visibility and operational efficiency.

Healthcare distributors in the region have welcomed the partnerships, citing growing demand for reliable pharmaceutical supply continuity and cost-effective therapeutic solutions.

Business analysts believe contract manufacturing collaborations could become a key growth engine for Indian pharmaceutical exporters targeting Southeast Asia over the next decade.

Zydus Lifesciences Strengthens Biotech Investment Strategy in Malaysia

Zydus Lifesciences has announced plans to increase biotech investments and research collaborations in Malaysia as part of its long-term strategy to expand advanced therapeutics development in Asia.

The initiative includes partnerships with biotechnology incubators, research parks, and pharmaceutical innovation centers focused on biologics, precision medicine, and advanced drug delivery technologies. Malaysia's supportive biotech ecosystem and skilled workforce have attracted growing international interest.

Company executives stated that the investment will support regional clinical development activities and strengthen access to Southeast Asian healthcare markets. The expansion also includes evaluation of future manufacturing opportunities for biologics and specialty products.

Industry stakeholders believe the move reflects the increasing shift of pharmaceutical innovation activities toward Asia-Pacific markets, where governments are actively investing in biomedical infrastructure and research commercialization.

Analysts expect several Indian and multinational pharmaceutical companies to announce similar biotech collaborations across Southeast Asia in the coming months.

Abbott Expands Nutrition and Diagnostics Business in India and Thailand

Abbott has expanded its healthcare business operations in India and Thailand with a strong focus on diagnostics, pediatric nutrition, and chronic disease management solutions.

The company is reportedly investing in regional diagnostic infrastructure, healthcare awareness programs, and digital patient engagement initiatives to strengthen its market position across both countries. Rising healthcare awareness and preventive health screening trends are driving demand for diagnostic solutions throughout Asia.

The expansion includes new collaborations with hospital groups, laboratory networks, and healthcare distributors to improve accessibility of rapid testing and nutritional care products in tier-2 and tier-3 cities.

Healthcare market analysts note that multinational healthcare companies are increasingly prioritizing Southeast Asia and India due to strong population growth, urbanization, and expanding healthcare insurance coverage.

Industry experts believe integrated healthcare solutions combining diagnostics, nutrition, and digital health monitoring will become a major business growth segment in the region.

Alkem Laboratories Reports Strong Export Growth from ASEAN Markets

Alkem Laboratories has reported significant export growth from ASEAN markets driven by increasing demand for gastrointestinal, anti-diabetic, and anti-infective therapies.

Company executives highlighted improved business performance in the Philippines, Myanmar, Cambodia, and Vietnam, where healthcare infrastructure development and pharmaceutical accessibility programs are expanding rapidly.

The company has also increased investments in regional medical representative networks, physician engagement initiatives, and digital marketing campaigns to strengthen brand visibility and therapeutic education.

Supply chain modernization efforts and improved regulatory approvals have further supported export growth momentum for the company's international business operations.

Industry analysts suggest ASEAN markets could become one of the fastest-growing export destinations for Indian pharmaceutical companies over the next five years due to rising healthcare expenditure and expanding pharmaceutical distribution networks.

Takeda Pharmaceutical Company Accelerates Rare Disease Business Expansion in Southeast Asia

Takeda Pharmaceutical Company has announced a strategic expansion of its rare disease and specialty care business across Southeast Asia, including Singapore, Malaysia, and Indonesia.

The company plans to increase collaborations with healthcare providers, patient advocacy groups, and regional medical institutions to improve awareness, diagnosis, and treatment access for rare diseases.

Advanced diagnostic partnerships and digital patient support platforms are also being introduced to improve treatment continuity and physician education in specialized therapeutic areas.

Healthcare economists note that rising healthcare investments and improving reimbursement frameworks are creating new commercial opportunities for specialty pharmaceutical companies in Asia-Pacific markets.

Industry experts believe rare disease therapeutics will emerge as a high-growth pharmaceutical business segment across Southeast Asia as healthcare systems continue evolving toward precision medicine and advanced specialty care.

Titan Enterprises Strengthens Operational Performance Through Streamlined Processes, Innovation and Supply Chain Resilience

Liquid flow meter specialist **Titan Enterprises** has strengthened its organisational performance through targeted process streamlining, operational efficiencies and continued investment in innovation, reinforcing its competitive position in global markets. From taking bold steps to reduce the company's impact on the environment, to redesigning products to take advantage of new materials and emerging technologies as opportunities arise.

Titan Enterprises Ltd

Forces such as tariffs, politics, climate and logistics can create immense supply chain pressures. Despite these ongoing economic burdens, Titan has delivered a 9% increase in sales revenue over the past two years, with continued momentum across the UK, Europe and the USA. The company remains on track to achieve comparable growth over the 2026/27 fiscal years.

Central to this performance has been Titan's focus on leaner processes, supply chain optimisation and R&D-driven efficiency. Investment in research and development continues to drive product innovation while improving manufacturing capability and cost control. Key initiatives include strategic OEM partnership development, the release of a new ultrasonic beverage meter and advances in ultra-low flow measurement below 2ml/min.

Operational efficiency has also been strengthened through closer collaboration with suppliers. By securing new UK-based suppliers, exploring alternative materials and adopting improved manufacturing processes, Titan continues to increase its buying power, mitigate cost pressures, enhance product performance and quality, while reducing risk and environmental impact across its supply chain.

"We work closely with our suppliers to streamline sourcing, limit cost increases and minimise disruption for our customers," says Jeremy Thorne, Operations Manager at Titan Enterprises. "These changes allow us to maintain competitiveness while improving efficiency and resilience across the business."

Developing a solid understanding of long-term customer needs and their future product development plans enables Titan to resource plan, either through offering 12-month call-off order options or ordering additional quantities above customer order requirements.

This proves cost-efficient and helps to relieve demand stress, fluctuations and disruptions in fulfilment, as Titan can predict they will be taken by customers within a relatively short period.

"Demand volatility is often driven by our customers' need for flexibility within their market so building in additional stock to manage 'urgent' demands, especially when we know our own suppliers have long lead times, strengthens our relationship with customers as they know they can rely on us to deliver," Jeremy continues.

Titan successfully balances adapting to change and advancing technology with maintaining stable, reliable, high-quality products that customers have trusted in their systems for years. Customers continue to choose Titan because we provide a strong sense of continuity, performance, accuracy and reliability.

Further efficiency gains have been achieved through technology-led process improvements. Titan has reduced waste and administrative overhead by transitioning from printed technical documentation to QR code-based digital systems, improving accessibility while lowering paper use. Packaging processes have also been streamlined, with recyclable cardboard and biodegradable fillers replacing traditional polystyrene materials.

Titan's commitment to operational performance is closely aligned with sustainability objectives. The company's installation of solar panel arrays at its UK manufacturing facility has reduced energy costs and offset approximately six tonnes of CO_2 in the first year.

"Our focus is on building a business that is operationally excellent, resilient and future-ready," says Kate Thomas, Company & Finance Director. "Strategic investments in efficiency, technology and sustainability are already delivering tangible cost savings while strengthening our long-term performance."

With a global network of distributors and partners supporting customers across Europe, the Americas, Australia and East Asia, Titan continues to streamline its operations while expanding market reach.

Its diverse flowmeter portfolio supports industries ranging from pharmaceuticals and medical devices to brewing, bio-engineering and high-performance applications in the oil and gas industry.

As Titan looks beyond 2026, a proactive move to engage new overseas distributors in South America, Africa and Middle Eastern regions to help serve Titan's international customers is high on the agenda. "Establishing alliances with new partners in certain regions where we have developed a strong customer base means we can support them with a more local presence," says Kate. A continued investment in process improvement, innovation and supply chain resilience will underpin sustainable growth and reinforce the company's position as a high-performance, forward-thinking and dependable flow sensor manufacturer.

More information can be found at **www.flowmeters.co.uk**

About Titan Enterprises

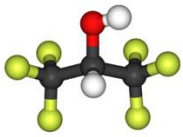
With over four decades of expertise in liquid flow measuring solutions, Titan Enterprises designs and manufactures high-performance flowmeters for OEMs, industrial and laboratory applications. Known for innovation, reliability, and a collaborative engineering approach, Titan supports customers worldwide in precision flow measurement challenges.

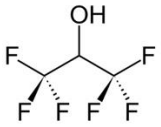
Degasser for volatile and **aggressive solvents**

Biotech Fluidics announce the **DEGASi® Integration HFIP** - a high-performance online system designed to **efficiently degas** even the toughest solvents.

This unique degasser is fully compatible with a wide range of volatile and aggressive liquids including Hexafluoroisopropanol (HFIP) and silanes but can also manage all other solvents used for GPC/SEC and HPLC.

HFIP is recommended for challenging liquid chromatography separations of polar polymers and peptides that are not soluble in common organic solvents. However, due to its unique highly polar, strongly acidic, and volatile nature - HFIP presents a challenge to standard degassing chambers.





Caption: High performance DEGASi® Integration HFIP online degasser

Available with two different degassing chambers for analytical and semi-preparative applications, the DEGASi® HFIP can handle flow rates up to 3 and 6 mL/min, respectively.

This online degasser also comes with an integration feature, meaning that it provides an output signal corresponding to the internal vacuum level (5 mV/mmHg), enabling continuous direct monitoring by instrument assemblies and software.

As with all DEGASi® Integration degasser systems you can expect very silent and trouble-free operation for many years. It is easy to exchange solvents in the DEGASi® HFIP degasser thanks to the low swept volume and efficient design of each channel. The internal patented closed-loop vacuum control assures ultra-stable degassing performance that minimizes noise in your high-precision system.

For further information please visit https://biotechfluidics.com/products/degassing-debubbling/degasi-inline-degassers/degasi-integration-hfip/ or contact Biotech Fluidics on + 46 300 56 91 80 / + 1-612-703-5718 / info@biotechfluidics.com.

Biotech Fluidics is a leading supplier of fluidic system solutions, liquid transfer components, degassing systems, and innovative laboratory technology to instrument developers, manufacturers, and distributors all around the world.

The company's mission is to empower its customers by designing and assembling unique products, being a dependable partner, offering first-class service, in-depth knowledge, and offering advanced technical support for all the items it provides. For further information - www.biotechfluidics.com

WIGGENS CO_2 Incubators: Reliable and Precise Cell Culture Solutions

The WIGGENS CO_2 Incubators are designed to provide stable and reliable environmental conditions for sensitive cell culture and microbiological applications. With advanced temperature and CO_2 control systems, they ensure excellent uniformity, reproducibility, and contamination protection, making them suitable for research laboratories, biotechnology facilities, and pharmaceutical industries.

Built with a stainless-steel chamber and optimized airflow design, the incubators maintain precise control of temperature, humidity, and CO_2 concentration. The advanced IR CO_2 sensor enables accurate monitoring and rapid recovery after door openings, while the air-jacket heating system ensures uniform temperature distribution and high humidity for ideal sample protection and growth conditions.

Key Features

Capacity: 15L to 1200L chamber with uniform heating

Temperature Control: RT +4°C to 60°C with ±0.1°C stability

CO_2 range & Control: 0% - 20% with ±0.1% accuracy with dual IR sensor

Construction: SS 304 stainless-steel chamber for corrosion resistance and easy cleaning

WIGGENS CO_2 incubators are available in multiple chamber capacities with adjustable shelves and flexible configurations to accommodate various laboratory applications. The intelligent control system continuously monitors operating parameters and provides visual and audible alarms for deviations in temperature, CO_2 concentration, or door opening, ensuring enhanced process safety and sample protection.

Suitable for applications such as: Cell and Tissue Culture, Stem Cell Research, Hatching/Germinating, Pharmaceutical Research, Microbiology and Biotechnology Studies, Protein Expression and Fermentation Studies

WIGGENS
THE MAGIC MOTION

The combination of precise environmental control, durable construction, and reliable performance makes **WIGGENS CO_2 Incubators** an efficient and dependable solution for modern laboratories.

In summary, **WIGGENS CO_2 Incubators** offer stable incubation conditions, advanced monitoring capabilities, and contamination control features to support high-quality and reproducible research outcomes.

To know more:

Thermo Fisher Launches Thermal Cycler for Workflow Flexibility and Lab Automation

The system features advanced thermal technology and modular block configurations to support complex molecular biology protocols.

Thermo Fisher Scientific has launched the Applied Biosystems PowerFlex Thermal Cycler, a next-generation polymerase chain reaction (PCR) instrument designed to improve flexibility and productivity for molecular biology laboratories.

PCR remains a foundational technique in life science research, and laboratories are increasingly sharing instruments across teams while managing more complex workflows. The PowerFlex Thermal Cycler was developed to address these needs through new block technology and precise thermal performance.

ThermoFisher SCIENTIFIC

"Today's labs are being asked to run more complex PCR workflows, often across shared instruments and under increasing time pressure. That's where traditional systems start to fall short," says Pawan Singh, vice president and general manager, molecular biology, Thermo Fisher Scientific, in a release. "With the PowerFlex Thermal Cycler, we've reimagined flexibility and performance together so researchers don't have to choose between speed, accuracy, and ease of use. We've also added support for fully skirted plates to enable lab automation."

Modular Configurations for Throughput

The system is available in two models to accommodate different laboratory requirements. A standard 96-well configuration offers broad plate compatibility for existing environments. For laboratories running multiple assays, a 3×32-well configuration features independently controlled VeriFlex blocks. This allows three different protocols to run simultaneously on a single instrument, helping to maximize bench space.

The technology is engineered to shorten run times while maintaining the reproducibility required for both routine and complex molecular biology workflows.

"We especially value the flexibility of running three independent experiments simultaneously, as well as the ability to set precise ramp rates in °C per second to optimize our protocols," says Maria Lung, a research scientist at Xpress Genomics AB, in a release. "The intuitive interface and the option to easily share log files provide additional confidence and support."

Interface and Automation Support

Operation is managed through a 10.1-inch touchscreen with a user-friendly interface. The system includes built-in simulation capabilities and AI-assisted Smart Help features to guide users through setup and troubleshooting, which the company says helps reduce training time and minimize workflow disruptions.

The PowerFlex Thermal Cycler is intended for use in life science research, biotechnology, pharmaceutical research, food testing, and human identification workflows. The platform is designed to support future expansion as laboratory needs evolve.

The instrument is currently designated for research use only and is not for use in diagnostic procedures. Additional information regarding technical specifications and PCR workflow solutions is available through the company's digital platforms.

SPT Labtech and EMBL GeneCore Partner to Advance Automated Genomics Workflows

The collaboration focuses on implementing a liquid handling platform to streamline end-to-end laboratory processes and protocol development.

SPT Labtech and the European Molecular Biology Laboratory Genomics Core Facility (EMBL GeneCore) have announced a collaboration to develop fully walkaway automated genomics workflows.

As part of the agreement, SPT Labtech has installed its firefly+ liquid handling platform at the EMBL GeneCore facility in Heidelberg, Germany.

Through the installation, EMBL GeneCore will expand its capacity to develop new protocols and optimize existing workflows for applications such as metagenomics and low-input samples. The firefly+ platform is an all-in-one instrument that integrates pipetting, dispensing, incubating, and shaking technologies into a single system.

"The installation of SPT Labtech's firefly+ platform as part of our collaboration underscores our commitment to remain at the forefront of scientific innovation," says Vladimir Benes, head of genomics core facility at EMBL, in a release. "Fully walkaway automation will address key bottlenecks in genomics workflows, helping us develop high-quality, scalable [next-generation sequencing] protocols."

The automated protocols utilize New England Biolabs (NEB) next-generation sequencing, known as NEBNext, to produce high-yield libraries from various input ranges. These kits are designed to enable the development of high-sensitivity next-generation sequencing protocols while minimizing plastic waste.

"Our latest collaboration with EMBL GeneCore marks a significant step towards advancing fully walkaway automation, providing end-to-end genomics workflows for a much wider range of applications, including environmental and rare species research," says Morten Frost, chief commercial officer at SPT Labtech, in a release.

The integration of the liquid handling platform with NEB library preparation kits is intended to create a foundation for end-to-end workflows, allowing laboratories to scale automation more easily.

"Integration of our library prep kits with SPT Labtech's firefly+ platform at EMBL GeneCore creates a compelling opportunity for faster, scalable DNA and RNA-Seq workflows, and we look forward to working together to develop novel solutions to overcome persistent challenges in genomics research," says Bjoern Textor, PhD, sales and senior applications manager at New England Biolabs GmbH, in a release.

New Electronic Pipette Features High-Resolution Touchscreen

The device incorporates intelligent power management and advanced programming capabilities to enhance reproducibility in laboratory workflows.

Thermo Fisher Scientific has introduced the Fluid Ease Pro ClipTip electronic pipette, which includes what the company says is the first large, high-resolution pipette touchscreen on the market.

The pipette features intelligent power management and advanced programming capabilities designed to support reproducible pipetting across routine and demanding laboratory workflows. The device is combined with the Thermo Scientific ClipTip attachment, which secures tips through a consistent, reliable seal between pipette and tip.

The company says the system offers one of the widest speed selections available, giving users control over pipetting behavior across applications, liquid types, and workflow demands.

The touchscreen approach transforms setup and protocol execution into a visual experience, reducing complexity and shortening training time for both new and experienced users.

"Labs are facing increasing research demands, emphasizing the importance of small, but necessary procedures like pipetting," says Karolina Pranckevičiūtė, Thermo Fisher global product manager, in a release. "The new Fluid Ease Pro ClipTip is designed to help not only enhance the pipetting process but to help create reproducible results across research teams all at a faster speed."

Ergonomic Design and User Profiles

The pipette's ergonomic design helps reduce strain during extended use throughout the workday, supporting both routine and high-throughput applications. The device features electronic tip ejection, reducing the force required during tip removal for safer, more comfortable operation during repetitive tasks.

Fluid Ease Pro pipettes unify operations across users and global laboratory networks with an interface that supports five language options and up to five user profiles. The structured interface includes shared preset protocols and custom calibration options to align performance to specific liquids or laboratory conditions.

Teams can align on workflows and achieve consistent results between regions and sites, supporting scalable laboratory operations worldwide, according to the company.

Applications and Capabilities

Key applications include pharmaceutical and biotechnology companies testing drug products in quality control laboratories or conducting micro incubation in research and development labs. Academic laboratories can use the device for stability testing, plant growth studies, and animal hatching experiments. Industrial and applied laboratories can apply it to cosmetics, packaging, and food and beverage shelf life testing.

The Fluid Ease Pro pipette can adapt to various tasks with gentle handling for sensitive or viscous samples. Users can tailor dispense speeds to fit a range of research applications. Flexible charging solutions and power-safe mode functions help protect battery performance while keeping pipettes ready for use in demanding laboratory environments.

The system supports up to five user profiles and shared preset protocols to help ensure consistent execution across the laboratory and reduce user-dependent variability.

Centrifuges with Next-Generation Natural Refrigerant Cooling System Launched

Thermo Fisher Scientific has launched new floor-model centrifuges featuring GreenCool Technology, providing sustainable solutions while maintaining high performance and sample security.

Takeaways:

1. The new centrifuges use natural refrigerants that comply with E.U. and U.S. regulations on fluorinated gases.
2. GreenCool Technology significantly reduces environmental impact, with a Global Warming Potential of 1.
3. These centrifuges enhance efficiency in blood banking, bioprocessing, and research while consuming up to 15% less energy.

Thermo Fisher Scientific Inc., the world provider in serving science, has introduced new lines of floor-model centrifuges to provide more sustainable solutions without compromising performance and sample security.

The Thermo Scientific Cryofuge, Thermo Scientific BIOS and Thermo Scientific LYNX centrifuges are floor-model centrifuges that feature natural refrigerant cooling systems compliant with European Union (E.U.) and U.S. Environmental Protection Agency (EPA) F-gas regulations. Regulatory bodies in the E.U. and U.S. are implementing regulations to discontinue fluorinated gases as refrigerants, and centrifuge manufacturers must comply to the new prohibition timelines.

ThermoFisher SCIENTIFIC

Centrifuges Feature GreenCool Technology

The Cryofuge, BIOS and LYNX centrifuges feature new Thermo Scientific GreenCool Technology, a next-generation natural refrigerant cooling system with a Global Warming Potential of 1, which is 1,397 times less impactful to the environment compared to previous technologies. They are also manufactured at Thermo Fisher's site in Osterode am Harz, Germany, a certified zero-waste facility powered by 100% renewable energy.

In addition to the improvements in sustainability, the new lines of centrifuges weigh less and generate less noise, enhancing the laboratory environment. The features and technologies remain market-leading for floor-model centrifuges. Focused on performance, protection of user and samples, intuitive operation, and excellent reliability, they deliver precise and efficient results in areas like blood banking, bioprocessing and a broad range of research applications.

"Sustainability is a top priority as we support our customers on their own journeys to embracing greener sciences," says Thomas Doerdelmann, vice president and general manager of growth, protection and separation at Thermo Fisher Scientific. "As the leader in superspeed and large-capacity centrifuges, we are proud to offer the first centrifuges with sustainability at the heart of design, manufacturing and operation that build upon the same market-leading quality and reliability our customers have come to trust."

Supporting Blood Banking and Processing

The Thermo Scientific Cryofuge 8 and 16 Blood Banking Centrifuges offer strong sample security and performance to blood processing centers in a more sustainable design.

Through user-friendly features like enhanced ergonomics and easy setup of traceable runs, they help ensure compliance with global standards for efficient blood processing. In addition to the innovative cooling system, they provide a 14% reduction in energy consumption compared to previous models.

Enabling High-Throughput Bioprocessing

Thermo Scientific BIOS A and 16 Centrifuges deliver power and enhanced sustainability to bioprocessing facilities and labs performing high-throughput applications. They help simplify working with large sample volumes and offer up to 15% lower energy consumption than the previous models.

Centrifuges Powering Complex and Evolving research

Thermo Scientific LYNX 4000 and 6000 Superspeed Centrifuges are designed for reliability, consistent results and maximum uptime in various research and bioprocessing laboratories. Through GreenCool technology, they maintain stable deep cooling temperatures, helping ensure the integrity of temperature-sensitive samples. They can also achieve greater speeds at 4°C to enhance performance for more efficient separations. Well-suited for shared laboratory settings, the LYNX centrifuges can support multiple users and high-throughput sample processing, offering up to 13% less energy consumption.

These new centrifuges replace the line of Sorvall centrifuges previously offered by Thermo Fisher Scientific.

Featured Image: Thermo Fisher's sustainable centrifuges give labs green options for their operations. *Photo: Thermo Fisher Scientific*

** Intended use of the products mentioned in this release varies. For specific use statements, please refer to the product label.*

Sapio Sciences Integrates Claude Cowork to Streamline Laboratory Data Management

The integration of the AI assistant with the Sapio Platform provides a single interface for searching, retrieving, and analyzing research and development data.

Sapio Sciences, an AI lab informatics company, announced that Claude Cowork, an agentic AI assistant from Anthropic, is now integrated with the Sapio Platform. The integration, facilitated through the Sapio Elain AI assistant, provides scientists and project leaders with a conversational interface to search, retrieve, and analyze data across a research and development (R&D) organization.

Working autonomously, Claude Cowork searches across various data sources to collate findings and return verified, structured outputs, including reports and dashboards.

When connected to the Sapio Platform, the assistant can take actions within electronic laboratory notebook and laboratory information management system processes. All actions performed by the assistant are executed with traceability and attributed to the requesting user.

"Sapio Elain is the AI co-scientist inside the Sapio Platform, making every interaction smarter for the scientist at the bench," says Kevin Cramer, CEO and founder, Sapio Sciences, in a release. "Claude acts as an extension of Elain's capabilities, opening up new reporting and analytical possibilities and enabling action on data across the entire organization. Together they give our customers AI that works at every level of the organization, all from a single prompt."

Addressing Research Bottlenecks

For scientists, the integration is designed to address bottlenecks in the research process. Questions that involve multiple processes or experiments typically require manual data exports and multiple searches. Claude Cowork is intended to answer these questions through a single prompt by retrieving and analyzing data across the full Sapio environment.

For project leaders and managers, the tool provides visibility across programs without requiring a direct login to the platform. Users can request real-time project status, identify which experiments are finished, and locate operational bottlenecks.

Applications in Lab Operations

The integration supports several use cases within the lab environment, including:

- Cross-experiment analysis: Identifying experiments related to specific molecules, comparing synthesis conditions, and surfacing optimal parameters for future work.
- Project data analysis: Pulling activity data for specific targets and running trend analysis across compound series.
- Program tracking: Providing real-time views of program status, completed experiments, and outstanding tasks.
- Compliance: Reporting on unsigned experiments that are past due, generating reagent inventory reports with reorder alerts, and producing key performance indicator dashboards.

"Scientists and project leaders spend too much time hunting for information that already exists across their organizations," says Rob Brown, vice president and head of the scientific office, Sapio Sciences, in a release. "Whether that data lives across experiments, across teams, or buried in email, Claude Cowork gives them a single conversation to find it, analyze it, and act on it. That is a meaningful shift in how R&D teams operate day to day."

The company also noted that Sapio Elain can be connected to other supported AI assistants, such as Microsoft Copilot and ChatGPT, allowing organizations to use their preferred tools.

Bruker Introduces MyGenius PRO® Molecular Diagnostics Platform at ESCMID 2026

Bruker has launched the MyGenius PRO® high-throughput sample-to-answer molecular diagnostics system, targeting clinical diagnostics laboratories, pharmaceutical research centers, and advanced microbiology testing facilities.

The platform is designed to streamline complex molecular testing workflows through integrated automation, rapid turnaround capabilities, and improved laboratory efficiency. Experts believe the technology could significantly support infectious disease diagnostics and pharmaceutical microbiology applications across Southeast Asia.

The launch reflects the increasing convergence of automation, AI-enabled diagnostics, and molecular biology within modern laboratory environments. Healthcare systems across Asia are actively investing in rapid diagnostics infrastructure to improve disease detection and outbreak preparedness.

Industry stakeholders note that high-throughput molecular platforms are becoming essential for pharmaceutical quality control, clinical trials, and hospital laboratory modernization initiatives. Demand for automated diagnostics solutions has increased substantially following expanded investments in healthcare infrastructure throughout the region.

Analysts expect strong market interest from pharmaceutical manufacturers, hospital laboratories, and biotech research institutions seeking scalable diagnostic platforms capable of supporting future precision healthcare demands.

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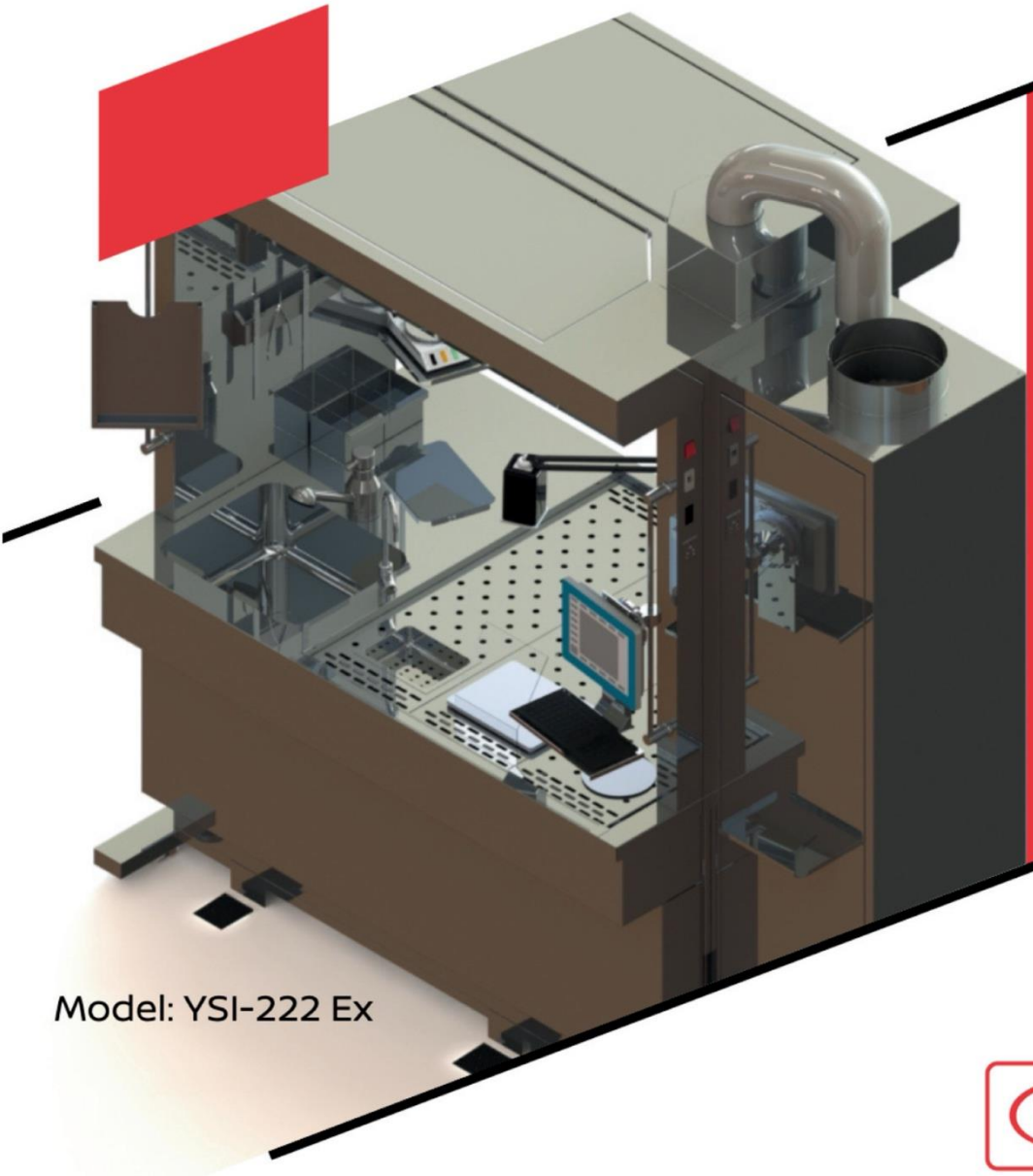

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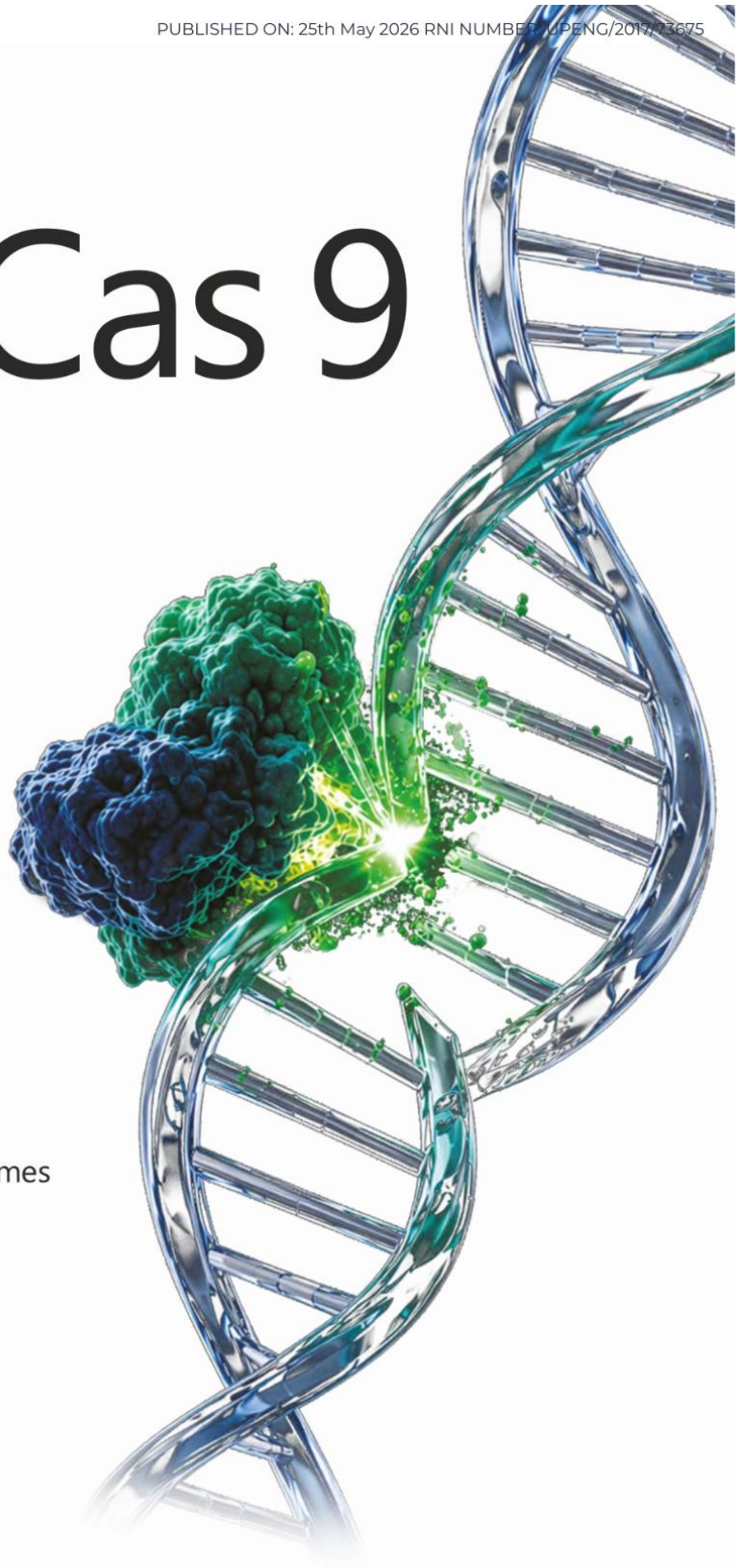

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