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LIFE SCIENCES

Advancing Science with Quality

THE life SCIENCES TIMES

Issue 04 | February 2025

What's inside

From
THE CEO'S DESK

Dear Friends,

It gives me immense pleasure to bring you the fourth edition of our newsletter 'The Life Sciences Times'. This small initiative has helped us become an active knowledge-sharing platform, which is followed by many from the industry. Incidentally, this is also the first issue of the New Year sharing insights about what the year would look like globally as well as for us.

The global plastic labware industry is estimated to reach USD 19.83 billion by 2028, growing at a CAGR of 12.20% witnessing high demands from diagnostics & healthcare, biotechnology and pharmaceutical sectors. That is positive news for the industry, especially Abdos Life Sciences. We have added a diverse range of products to our portfolio to enhance our customer experiences. Our newest additions include Western Blot (Compact Blot), contact plates, large-capacity centrifuge tubes, bottle safety carriers, self-manufacturing desiccators, CompactPAGE mini-moulded vertical electrophoresis, Erlenmeyer Flasks, etc. to name a few.

We stay committed to our core values, which gets best reflected in all our actions. We maintain precision in everything we do including products, manufacturing, supply chain, quality check, etc. Responsiveness to customers, channel partners is key for us. Our dedicated team is on their toes 24x7 to provide our client excellent user- experiences. Sustainability is also a guiding light for us. We give back to the society through our green initiatives. We ensure reduction in plastic wastage and believe in minimising environmental impact by utilising advanced recycling methods and innovative technologies.

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In this edition, we bring to you the latest research undertaking related to the life sciences–new trends to lookout for in 2025, how bioplastics can help in attaining sustainability, understanding the role of *Arbuscular mycorrhiza* in sustainable agriculture, CAR T-Cell Immunotherapy, new product innovations – CompactBLOT, our extensive participations in national and international exhibitions like Medica (Dusseldorf, Germany), Analytica (China), CPHI (Greater Noida), etc.

I am sure you would enjoy reading this newsletter and am extremely hopeful that you would extend your wholehearted support. Please send in your inputs and help us make this initiative a huge success.

Happy reading!

Thanks

Shrey Agarwal
CEO, Abdos Life Sciences

Life Sciences Industry Trends to Look-Out in 2025

In the fast pace of technological advancements and evolving landscapes, Life sciences industry is expected to witness the significant changes in 2025. With an acceleration in AI tools, investments in cell & gene therapies, precision medicine & genomics; a set of new regulatory pathways will pave its way through evolving customer demands.

Starting with the AI driven solutions in analysing the complex data to integration in-to development of various targeted therapies and drug discoveries, AI and machine learning algorithms will further streamline and push the boundaries for rapid results. Case studies, such as DDR1 kinase inhibitors designed using generative models and CDK20 inhibitors developed via structure-based methods, highlight AI's ability to produce highly specific therapeutics[1]. Another important aspect would be having heightened attention on healthcare data management and cyber securities. Further advancements in cell and gene therapies, with innovative methods of detection and diagnosis, followed by innovative manufacturing techniques will be a fueling factor for reduced testing costs and increased patient access. When it comes to personalised treatments, the latest approaches of CRISPR gene editing, Biomarker studies for early disease diagnosis, will continue to prepare the grounds for more accessible and tailored therapies based on the individual genetic profiles. Recent clinical trials and successful outcomes in gene therapy, particularly those involving AAV and the clustered regularly interspaced short palindromic repeats (CRISPR)–CRISPR-associated proteins, illuminates the transformative potentials of this approach in disease treatment [2].

The global expansion of life science reagent manufacturers and service providing companies will expedite the regulatory frameworks and approval processes, particularly for rare and life-threatening diseases. A close monitoring of many evolving and emerging laws and regulations across pharmaceuticals, biopharma, biologics, medical devices, diagnostics, and laboratory testing would be another perspective of interest to overview the key developments in 2025 and beyond. To summarise, 2025 promises to be a transformative year for the life sciences industry.

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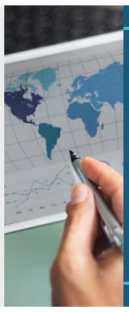
2.https://doi.org/10.1002/mco2.645



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Bioplastics in labware manufacturing: A step towards sustainability

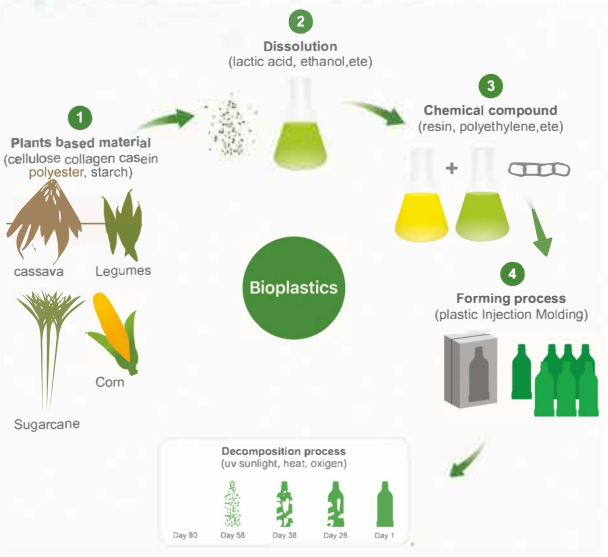
Bioplastics, the latest trend in the labware manufacturing industry includes considerable use of bioplastic, which offers reduced carbon footprints and environmental benefits Over 400 million tons of plastic are generated annually, yet bioplastics formation just 0.5% despite the push for sustainability [1].

With the recent advancements in global research and development aim to improve the properties and processing techniques of bioplastics for greater application in the labware manufacturing industry. This includes exploring new biomass sources, enhancing bioplastic formulations, and optimizing production processes. Utilizing the bioplastics leads to the decreasing of the greenhouse gas emissions that are produced during the production, which also reduces the dependency on non-renewable resources. In addition, the use of biodegradable bioplastics provides a solution to the consistent problem of plastic waste disposal in laboratories, where single-use plastics are common in research and medical labs.

Current research discovers an innovative method for the formulation of bioplastic using marine green algae, which has emerged as a promising resource because of its renewable nature, speedy growth rate, and high biomass yield. The species of green algae, like *Ulva* and *Cladophora* were used to obtain polysaccharides and proteins and blended with plasticizers and natural additives to enhance mechanical properties, biodegradability, and water resistance, making them suitable for applications in packaging, agriculture, and single-use products [2]. Thus, providing a solution to reduce the plastic pollution while adopting the use of marine biomass, laying a way for a circular bioeconomy.

Furthermore, recent studies on bioplastics involve the use of specific species of microorganisms, such as *Yarrowialipolytica* and other various *Pseudomonas* species, which have been utilized to digest the food waste and transform complex organic compounds into simpler substances like fatty acids and oils that serve as precursors for bioplastic production. Using the bioreactor operations, these microorganisms are cultivated in the bioreactor under controlled environments where they metabolize the food waste and convert it into lipids as byproducts, which are consequently collected, purified, and then chemically or biologically polymerized into bioplastics. The polyhydroxyalkanoates (PHAs), being the most common bioplastics generally used in industrial settings [3].

As the trend towards the sustainability and the use of bioplastics poised to play a crucial role in lowering the environmental impact and encouraging more sustainable practices in the research institutes and healthcare industries.



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1. Bioplastics Magazine. EUBP Market data: Global bioplastics production and capacity, 2024.
2. Microbial Conversion of Food Waste into Bioplastics," Journal of Applied Microbiology, 2023.
3. Applications of algae for environmental sustainability: Novel bioplastic formulation method from marine green alga, Frontiers 2023.

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Unveiling the Role of *Arbuscular Mycorrhiza* in Sustainable Agriculture

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Arbuscular mycorrhiza (AM) represents a vital symbiotic relationship between the roots of most land plants and fungi, playing a critical role in ecosystem health and plant productivity. This partnership facilitates the exchange of essential mineral nutrients, such as the poorly accessible phosphate, for organic carbon provided by the plant. The colonization of plant roots by AM fungi is influenced by phosphate availability, being promoted under low phosphate conditions but inhibited when phosphate is abundant. Recent research has shed light on the molecular mechanisms underlying this phosphate-dependent regulation. In plants, the transcriptional regulator PHOSPHATE STARVATION RESPONSE 2 (PHR2) has been identified as a key player in mediating this symbiosis. Studies reveal that PHR2 is essential for root colonization by AM fungi, facilitating mycorrhizal phosphate uptake and improving crop yield in field conditions. It achieves this by regulating genes critical for pre-contact signaling, fungal colonization, and the functionality of the AM association, linking the symbiotic process directly to the plant's phosphate starvation response.

Globally, research on AM symbiosis has intensified, focusing on its potential to enhance sustainable agriculture and ecosystem resilience. Scientists are exploring the genetic and molecular pathways that govern AM interactions across diverse plant species. In addition to the role of transcription factors like PHR2, studies are delving into the signaling molecules and metabolic exchanges that enable this symbiosis. For example, current research investigates how strigolactones, plant hormones, attract AM fungi to roots under nutrient-deprived conditions. Efforts are also underway to harness AM fungi to improve crop nutrient use efficiency and reduce dependency on chemical fertilizers, addressing environmental challenges. These advancements not only deepen our understanding of plant-fungal relationships but also open avenues for biotechnological applications to promote sustainable food production and ecosystem health worldwide.

The Rise of CAR T-Cell Immunotherapy

For decades, the foundations of cancer treatment have been surgery, chemotherapy, and radiation therapy. These continue to be critical mainstays of treatment, but new categories of treatment have recently helped transform the treatment picture for people with cancer.

And over the past decade, immunotherapy —therapies that enlist and strengthen the power of a patient's immune system to attack tumors—has rapidly become one more “pillar" of cancer treatment. Advances in genetic engineering combined with an improved understanding of T cell recognition have led to the design of synthetic tumor targeting receptors, termed chimeric antigen receptors (CARs) that can be introduced into human T cells to redirect antigen specificity and enhance function in immunotherapy.

CARs consist of monoclonal antibody-derived single-chain variable fragment(scFv) linked by a hinge and transmembrane domain to a variable number of intracellular signaling domains. CD19 represents an attractive target for immunotherapy because the vast majority of B-acute lymphoblastic leukemia (B-all) uniformly express CD19. Numerous anti-CD19CAR-T cells have been generated for treatment of B cell malignancies.

Till now 7 CAR T-Cell Therapies have been approved by FDA. In conclusion, CAR T cell therapy is not just a breakthrough in cancer treatment, but a new hope for patients who previously had limited options. As research and technology continue to advance, we can expect even more personalized, effective treatments that could transform the future of oncology.

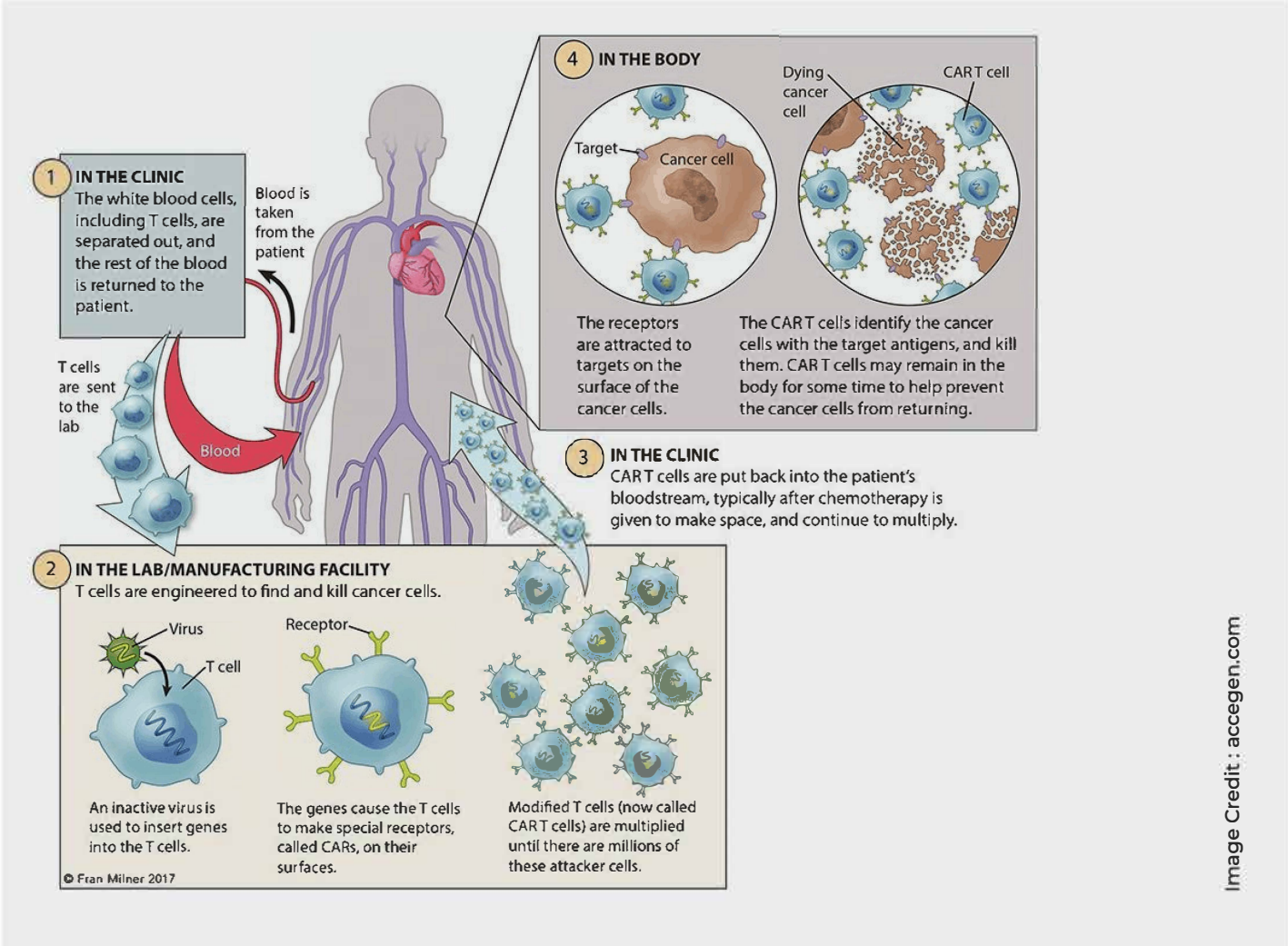

Image Credit : accegen.com

Abdos in Global Space

‘Reflecting on Our Successful Presence at International and National Events’

Abdos Life Sciences is thrilled to announce the success of its participation as an exhibitor in a series of the World’s premier trade shows in Life Sciences and Healthcare. With a big bang beginning in Dusseldorf to all together in another world of Shanghai, our dedicated teams explored and unrolled the best across three successful international exhibitions of the last quarter. This not only propped up the team to traverse the global market but indeed provided with a powerful platform to showcase its latest innovations, connect with industry leaders from across the globe and allowed us to explore new opportunities in the ever-evolving life sciences market.

MEDICA Dusseldorf:

MEDICA Düsseldorf, Europe’s biggest trade fair, a true hub for ground-breaking innovations in laboratory technology, diagnostics, and digital health helped us to engage with potential channel partners and forge valuable new relationships. With our existing warehouse facilities in Venlo, Netherlands, this event provided with the perfect setting for productive meetings with existing channel partners, enabling us to strengthen partnerships, discuss market trends, and align strategies for continued growth in more than 90 countries. We had a fantastic opportunity to host our global partners with cordial dinner evenings and productive networking. It was inspiring to have cutting-edge solutions as presented by fellow exhibitors too. This exposure to new technologies and trends ensures we remain at the forefront of the industry, delivering the best products and services to our customers.

ANALYTICA Shanghai:

Analytica Shanghai, a prominent international exhibition, is an altogether different experience that offered a significant platform to explore new business avenues and stay updated on the global technological advancements. The opportunity to showcase Abdos’s journey as a brand including diverse verticals of Labtech, Lamitube, FMCG contract manufacturing, at the booth, offered a gateway to enhance its credibility and visibility in one of the largest and fastest growing markets of life sciences products. Establishing a presence at the event has opened new business channels and partnerships. This event is a true success in boosting the brand awareness and visibility standing high in broader Asian markets.

Abdos at CPHI 2024 :A Showcase of Excellence

Abdos participated in CPHI 2024, where we proudly showcased our innovative product ranges, including the AmpQlear PCR series, advanced Cell Culture solutions, and one of the world’s lightest Elegant Pipettes. Additionally, our Electrophoresis range and high-quality other plastic labwaresalso drew attention from visitors.It was a great honour to meet with our esteemed clients and industry leaders, fostering deeper connections and strengthening our commitment to advancing science together.

The year-end provided remarkable opportunities to reinforce our position on renowned global platforms, enhance our international visibility, and continue to build our network of trusted partners. We look forward to leveraging the connections and insights gained at multiple events as we continue to innovate and grow.

CompactBLOT – A State-of-the-art Western Blotting Apparatus

Western blotting, a widely used key technique to detect and analyse specific proteins from a sample or a mixture of proteins involving three major steps.

a. Protein Extraction

b. Gel Electrophoresis & Transfer onto a membrane

c. Antibody Incubation, Detection and Analysis

From identifying the protein to determining the relative amount and further post-translational modifications; western blotting is highly specific and sensitive allowing the detection of low- abundance proteins in complex mixtures. To support your research, ABDOS have recently launched the CompactBLOT Mini Wet Blot Transfer System which is designed to complement its already existing CompactPAGE Mini Vertical Electrophoresis System.

Product Features:

1. Modular Design: Streamlined workflow, can be used directly in the same tank as the CompactPAGE system.
2. Innovative: Safety cassette locks, tanks with safety lids & base locking, etc.
3. User Friendly: Tanks with Thumb locators & Thumb Holding clips for easy workflow
4. Efficient WET Blot Transfer Technology: Works well for complex or high molecular weight proteins too.

NOTE: A product Webinar awaits your presence for more details on the technique and our latest launch.

STAY TUNED TILL THEN!

Product Differentiator – Media Bottles

Abdos Media Bottles are designed to meet storage and shipping needs of liquid media, buffer, and serum with the utmost reliability. Available in a range of volumes – 60/125/250/500/1000 ml – these bottles are offered in two robust polymer options: Polyethylene Terephthalate Glycol Co-polyester (PETG) for superior impact resistance and excellent gas-barrier properties, and Polyethylene Terephthalate (PET) for enhanced optical clarity and increased inertness.

The square shape not only provides an ergonomic design but also maximizes space efficiency compared to round bottles of the same volume. Featuring narrow mouths for precise pouring control and a liquid leak-proof guarantee, these bottles are perfect for sensitive applications. With an operational temperature range of -80°C to 60°C and non-pyrogenic, non-cytotoxic properties to protect your cells, you can trust that your media will be safely stored. Embossed graduations ensure easy volume measurement, and the HDPE closure adds a layer of security to your valuable contents.

Distributor Testimonial

“ABDOS – CIENCOR: The Brazil Dairy”

In the Life Sciences industry, a strong relationship is one that's built on trust, good communication and timely availabilities. We take an immense pleasure to have an association with Abdos Life Sciences, which we proudly showcased at the 69th congress of Genetics at Campos do Jordao city, Brazil; and had an opportunity to promote the broad range of Abdos products.

Since the beginning of the pandemic in 2019, we have been working closely with Abdos, and over time, our portfolio has grown significantly. Customers from all over Brazil have tested Abdos products, and the feedback has been overwhelmingly positive. These products have consistently delivered excellent results in their research, as demonstrated by the outcomes from Bauru.

This is a prime example of the successful partnership between Ciencor and Abdos Life Sciences in Brazil over the past few years. We wish to grow together to newer heights in the upcoming years too.

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