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BioSpectrum

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Indian Pharma Hits R&D Salvo

"We are focusing on developing 10 'Pharma Villages' to decentralise pharma production, taking manufacturing closer to rural areas"

- Jayesh Ranjan, Principal Secretary, Department of IT and Industries, Government of Telangana - 30

"The pharma packaging landscape is evolving rapidly, driven by advancements in technology and changing regulatory landscapes"

- AVPS Chakravarthi, Chairman and Managing Director, Ecobliss India - 35

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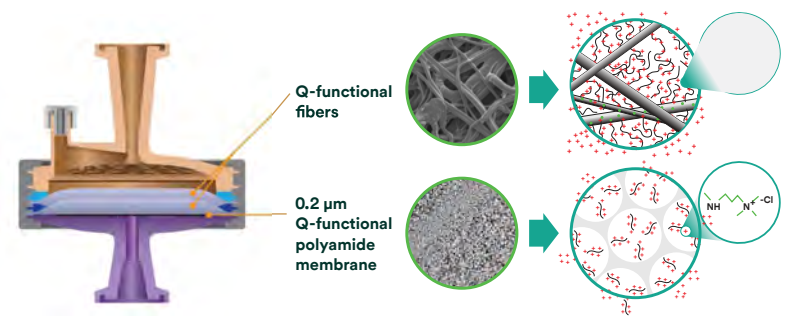
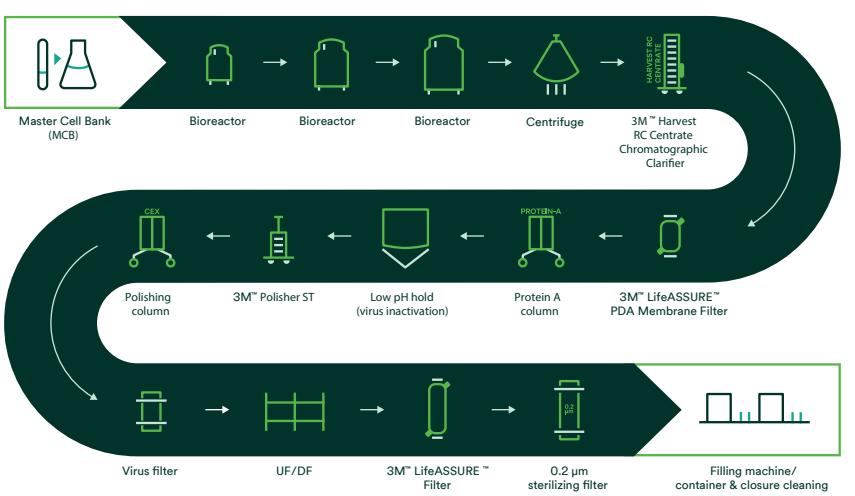


Centrate clarification simplified:



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Acknowledgement/ Feedback

Thank you BioSpectrum for giving me the opportunity to pen down my thoughts on the global burden of anti-microbial resistance (AMR), in the year-end issue.

- Dr Aakanksha Kalra, Solan

Much thanks BioSpectrum for featuring the article by Everest Group in the December 2024 edition. Everest Group's Advanced SciTech (AST) team is focusing on identifying and assessing the impact of emerging trends, technologies, innovations and developments in the F&B, consumer health, nutraceuticals, CPG, biotech, and healthcare domains along with enablers like digitisation and sustainability.

- Aarthi Janakiraman, Chennai

HealthTech VCs are playing a crucial role in helping international startups expand into India by assisting with the setup of technology infrastructure, operational bases, and navigating the complex regulatory landscape. Thank you so much for publishing the article on strategic angel investment focused on the medtech and diagnostic space.

- Nitish Kumar, New Delhi

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Letter from Publisher

Ravindra Boratkar
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Dear Readers,

Pharma firms are always looking to use the most recent, cutting-edge innovation to find the next big game-changing medication or treatment. To spur innovation, companies with an increase in R&D expenditure in 2023–24, are shifting their focus from their traditional drug portfolios to research and development (R&D) in next-generation therapies. This is especially true for complex generics, biosimilars, cell and gene therapies, and novel drug delivery systems.

Indian pharmaceutical firms generally dedicate 5-10 per cent of their overall revenue to R&D, mirroring a pattern seen in other prominent Asian companies that also commit a comparable fraction to research and development. The cumulative R&D spending of the top 10 pharma companies ranked by market capitalisation, according to GlobalData from their Annual Reports for FY 2023-24, hit Rs 137.1 billion for 2023-24, averaging Rs 13.71 billion each with an average rate of 5.9 per cent. Our cover piece discusses how these leading companies have performed in their R&D spending in 2023-24 to develop innovative therapies that benefit patients and reduce the strain on the country's economy.

Telangana is quickly solidifying its place as a global leader in the life sciences and Active Pharmaceutical Ingredients (API) sectors after overcoming a number of obstacles and difficulties. The state successfully attracted investments totalling Rs 36,000 crore and Rs 5,260 crore from both domestic and international pharmaceutical companies between November 2023 and December 2024, in the life sciences and API industries, respectively. With more than 140 projects planned, the state's remarkable economic trajectory will be demonstrated in the days ahead as these investments in the life sciences industry are expected to create 51,000 direct jobs and an additional 1,50,000 indirect jobs. Our team has done a feature which speaks about how Telangana has emerged as the epicentre for global life sciences innovation with the business-friendly approach of the state government and the strong ecosystem that it has built over decades.

The use of automation, data analytics, telemedicine, and artificial intelligence (AI) is driving significant changes in the Indian pharmaceutical and healthcare sectors. Platform engineers, data scientists, and AI professionals are among the positions that are in high demand as a result of these advancements, which are changing the workforce. Despite replacing roughly 23 per cent of current jobs, a recent analysis predicts that these technology changes would create between 2.7 and 3.5 million new jobs by 2027. An industry expert noted that this change is expected to result in a large boost in the pay for specialised positions, especially in fields with strong demand, such as automation and personalised treatment.

As India adopts best practices from countries that have achieved success in medtech, it has the potential to not only transform its medtech landscape but also ensure a healthier, more sustainable future for its 1.4 billion citizens. By focusing on technology, accessibility, and sustainability in 2025, India can address its healthcare challenges while setting a global benchmark for emerging economies, is what is projected in an expert article.

2024 was a year of growth and milestones. Together, we've achieved remarkable things. May the coming year '2025' bring you endless possibilities and opportunities.

Thanks & Regards,

Ravindra Boratkar,
Publisher & Managing Editor

COVER 18

Indian Pharma Hits **R&D Salvo**

Pharma companies are constantly on the quest to discover the next big game-changer drug or therapeutic by leveraging the latest, cutting-edge innovation. While it is notable that biopharma companies eased up on their research and development (R&D) spending in FY 2022-23 after the world was hit by COVID-19-induced economic slowdown, the budget for R&D has witnessed a steady increase. Departing a bit from their traditional drug portfolios, companies are increasingly focusing on R&D in next-generation therapies to drive innovation, particularly in complex generics, biosimilars, cell and gene therapies and novel drug delivery systems.

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State Focus

Speaking With

Medtech

Top Video

Dr Bilal Thangal T M, Medical Lead at NURA talks about how proactive screening can stem the rising cancer rates in low-income nations.

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Anindith Reddy, Co-founder and Managing Director, Enliva shares his opinion on how to phase out chlorinated gloves, a significant step toward a healthier environment.

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Skillsets

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Quality Quandary Fix

For the pharmaceutical sector, 2025 begins not only with the wishes of a Happy and Prosperous New Year but with more responsibility towards quality upgrade. Revised Schedule M of Drugs and Cosmetics Rules, outlining good manufacturing practices (GMPs), became the legal mandate with effect from January 1, 2025.

In his recent speech at the Organisation of Pharmaceutical Producers of India (OPPI), the Drugs Controller General of India (DCGI) asked pharma companies to conform to the value chain and audit requirements as per Schedule M, 13 parts of which have been revised last year to check non-standard-quality (NSQ) drugs. In the revised Schedule, new benchmarks have been created and GMPs have been specified. They include elaboration of manufacturing standards for oral solids, hazardous pharmaceuticals and parental formulations. All the revisions are aimed at ensuring quality.

Quality, resulting from GMPs, is becoming crucial for Indian pharma with the sector exporting drugs on a large scale. Over 20 per cent of the world's generic medicines and 37 per cent of low and middle income countries' (LMICs) vaccines are provided by Indian companies. Not only for exports, quality is crucial in domestic supplies too to ensure safety and efficacy.

India's image as an exporter of manufactured drugs took a hit in the last two years due to allegations of substandard medicines. In the domestic market, regular checks by the drugs regulator Central Drugs Standard Control Organization (CDSCO) each month are detecting the presence of spurious and NSQ drugs as well as drugs that violate regulatory standards.

In October alone, 90 spurious or NSQ medicines and drugs were identified by the central as well as state regulators. In 2022-23, 3,053 drugs were found to be substandard and 424 as spurious or adulterated.

While the regulators are trying to put effective checks on poor quality drugs by conducting regular checks, a section of the industry is showing interest in ensuring quality of medicines but with some amendments. Member companies of Indian Pharmaceuticals Alliance (IPA) have written to the DCGI and have called for reforms to the country's drug quality inspection system aiming to align it with global standards. IPA has been working to improve the quality standards of drugs by training its member organisations. It has focused on the key area of capability building by educating field teams to report counterfeit drugs.

In the letter, IPA has proposed that the regulator give 30 days' notice to companies to respond to allegations of producing NSQ drugs before releasing the information to the people. In some recent cases of NSQ drug samples, the companies have stated that they have not produced the particular batch of NSQ drugs, instead some other companies are bringing these drugs to the market misusing their names and their brand names.

The Federation of Pharma Entrepreneurs (FOPE) had written to the government in August itself that 20 per cent manufacturers comply with WHO GMP and among the rest, most will face closure if revised Schedule M is implemented without adequate time and handholding. It has demanded a two year extension. Some companies have already introduced unique product identifiers and QR codes on packaging to verify authenticity of the drug. This is particularly useful in identifying spurious or counterfeit drugs – the drugs that are produced by some other companies than its regular producer.

The industry may continue to have some problems, but quality cannot be compromised. International experts feel that our manufacturing capabilities fall short of international standards. Regulatory compliance and a deeply ingrained quality culture becomes crucial more than ever, particularly when we set the target of taking our pharma industry from the current $65 billion to $500 billion in valuation by 2047. The government has made the beginning by implementing the revised Schedule M from the current year. The ball is now in the industry's court. BS

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CDSCO approves robotic system for telesurgery by SS Innovations

The developer of the country's first indigenous surgical robotic technology, SS Innovations, the visionary force behind Made-in-India SSI Mantra Surgical Robotic System, has achieved a historic feat in Indian medical science by becoming the first and only company in India to receive Central Drugs Standard Control Organisation (CDSCO)'s regulatory approval for Telesurgery and Teleproctoring, signifying a monumental leap in surgical robotics. This landmark achievement positions SSI Mantra as the first surgical robotic system

in India authorised to perform these advanced capabilities. By enabling Telesurgery and Teleproctoring, the system aims to decentralise and democratise access to surgical expertise, addressing critical gaps in healthcare, particularly in remote areas, where access to specialised medical care has often been a challenge. This historic achievement marks a significant step forward in India's healthcare landscape, with SSI leading the charge in revolutionising surgical care through cutting-edge technology. The approval of Telesurgery and Teleproctoring capabilities for SSI Mantra Surgical Robotic Systems not only underscores the company's commitment to innovation but also opens up new possibilities for accessible, high-quality healthcare across India and beyond.

USIBC inks MoU with Telangana

The US Chamber of Commerce's US India Business Council Global Private Limited (USIBC GPL) and the Department of Information Technology, Electronics & Communications (IT E&C), Government of Telangana, have signed a Memorandum of Understanding (MoU) to bolster US-India collaboration and partnership in technological innovation. The MoU outlines cooperation in key focus sectors including IT, Artificial Intelligence (AI), electronics and Global Capability Centers (GCCs). The signing was followed by an industry roundtable on AI and GCCs, reinforcing Hyderabad and Telangana's role as a global technology hub. The discussion highlighted Hyderabad's thriving ecosystem of skilled professionals and its pivotal role in US-India collaborations. The participants explored AI-driven opportunities across sectors as well as the ways to optimally harness AI technological innovation for global good while at the same time prevent misuse via regulation, governance, ethical use, in a manner that does not stifle innovation.

Health Ministry signs MoU with Banaras Hindu University and Ministry of Education to support Institute of Medical Sciences

Union Health Ministry has entered into a tripartite Memorandum of Understanding (MoU) with Banaras Hindu University (BHU) and Ministry of Education to provide enhanced funding and technical support to Institute of Medical Sciences (IMS), BHU. The MoU enables provision of grant in aid to IMS, BHU by the Ministry of Health and Family Welfare (MoHFW) on the lines of new All India Institute of Medical Sciences (AIIMS) set up under the Pradhan Mantri Swasthya Suraksha Yojana (PMSSY). The provision of grant to IMS BHU by MoHFW will enhance the availability of affordable state-of-the-art secondary and tertiary healthcare services to the people of the region. It will contribute significantly in reducing referrals by enhancing delivery of clinical care services. This will result not only in increased patient experience and satisfaction but is expected to notably reduce out of pocket expenditure on patient care.

Jagat Pharma endeavours for Rs 250+ Cr revenue by FY 2027

Jagat Pharma, a trusted name in Ayurvedic wellness, is poised for remarkable growth as it targets revenue exceeding Rs 250 crore by the financial year 2027. Renowned for its expertise in Ayurvedic eye care and wellness products, the company has steadily expanded its reach across India and beyond, combining a legacy of over 42 years with innovative strategies. The company has an impressive reach in the offline space also, with over 200 distributors across 17+ states. This includes a strong presence in South India with 50+ distributors for a territory that is embracing Ayurvedic solutions in increasing folds. With yearly 200 per cent growth its online space dominance gives it a 60 per cent market share in the Ayurvedic eye care segment as well. Jagat Pharma's ambitious expansion plans extend far beyond Indian borders. The company is actively preparing to enter the lucrative markets of the Middle East and African countries, tapping into regions with a rising demand for holistic healthcare solutions.

Metropolis Healthcare acquires Core Diagnostics for Rs 246.8 Cr

Metropolis Healthcare has announced that its Board of Directors has approved the acquisition of Delhi NCR headquartered Core Diagnostics, a prominent player in India's specialised diagnostics sector. This strategic acquisition will enhance Metropolis' capabilities in advanced cancer testing, while deepening its presence in Northern and Eastern India and driving market share expansion in the specialised segment across the country. Metropolis will acquire a 100 per cent stake in Core Diagnostics through a combination of cash and stock, financing 55 per cent of the transaction in cash and 45 per cent through an equity swap, totalling Rs 246.8 crore. Core Diagnostics registered revenue of Rs 110 crore in FY 2023-24. The equity issuance is subject to shareholder approval, and the acquisition is expected to be completed within 60 days. Core Diagnostics offers over 1,300 high-end tests, with a primary focus on cancer, serving more than 6,000 specialty prescribers, including 1,600+ top cancer specialists. The company has achieved ~ 22 per cent revenue CAGR over the past three years and is led by a professional team. Core Diagnostics was formerly owned by private equity companies.

Piramal Alternatives Fund invests Rs 185 Cr in 3Gen Consulting

Piramal Alternatives Fund has entered into definitive agreements to invest upto Rs 185 crore via convertible instruments in 3Gen Consulting, a leading healthcare consulting and revenue cycle solutions provider with presence in India and across USA. The growth capital from the Piramal Alternatives Fund will be strategically utilised to expand 3Gen Consulting's service offerings across both existing and new customer segments, elevate

brand recognition, strengthen market positioning, and explore inorganic growth opportunities. Wodehouse Capital Advisors' acted as the exclusive financial and strategic advisor for the transaction. Revenue Cycle Management (RCM) solutions and healthcare consulting are garnering significant interest from both financial and strategic investors. The overall RCM industry in India is currently valued at approximately $4 billion and is projected to experience robust growth at a double-digit compound annual growth rate (CAGR), with expectations to reach $14 billion by 2032.

$3B annual investment opportunity in climate-health adaptation for India

Quadria Capital, in association with HealthQuad and PwC India, has released a critical new report titled 'Financing the Climate-Health Frontier: Emerging Opportunities.' This comprehensive study highlights the urgent need for enhanced investment in climate-resilient healthcare systems to address the significant health risks posed by climate change in India. The report highlights that global climate action in 2022 came to $1.4 trillion, with 91 per cent dedicated to mitigation and a mere 0.5 per cent to enhancing health outcomes. India's climate action reached $22.5 billion in 2022, with about $1 billion (4 per cent) dedicated to climate-health projects. Debt-based instruments accounted for 80 per cent of this funding, highlighting a significant gap in equity financing. An estimated $16 billion annually is required through 2030 to fund adaptation and mitigation investments in India's healthcare sector to address climate-related challenges. The projections suggest a $3 billion annual market potential for private investments in adaptation-focused strategies on climate and health.

Bajaj Finserv AMC launches healthcare fund

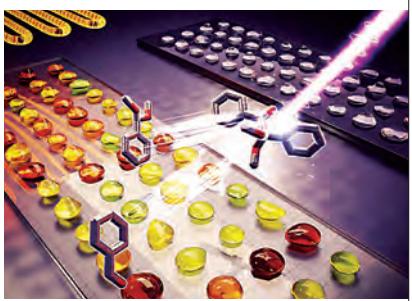
Bajaj Finserv AMC has announced the launch of the Bajaj Finserv Healthcare Fund, an open-ended equity scheme that seeks to create long-term growth by investing in health and wellness-linked sectors. The Bajaj Finserv Healthcare Fund is suitable for investors seeking wealth creation potential over the long term by investing predominantly in equity and equity-related instruments of companies engaged in pharmaceuticals, hospitals, diagnostics and wellness. It is suitable for an investment horizon of five years or more. The scheme is benchmarked against the BSE Healthcare Total Return Index (TRI). The fund aims to capitalise on the dynamic growth of the Indian healthcare sector. The industry is undergoing a significant transformation driven by shifting demographics, rising private healthcare expenditures, technological advancements, and other factors. This fund provides investors with an opportunity to benefit from the health and wellness boom and tap into emerging megatrends in this space. Its portfolio will span a range of sectors, including pharmaceuticals, medical research and manufacturing, diagnostics, medical equipment, hospitals, healthcare facilities, and more.

Aster DM Healthcare and Quality Care India ink definitive agreements for merger

Aster DM Healthcare, one of India's largest and fastest growing integrated healthcare service providers, and Quality Care India Limited (QCIL), backed by Blackstone and TPG, one of the largest privately held hospital chains in India with a focus on emerging cities, have signed definitive agreements for a merger. The merger has been approved by the Board of Directors of the respective companies and is subject to regulatory, corporate and shareholders' approvals. The merged listed entity will be named Aster DM Quality Care Limited. Aster DM Quality Care Limited will have a combined portfolio of four leading brands: Aster DM, CARE Hospitals, KIMSHEALTH and Evercare. The combined entity will have a network of 38 hospitals and 10,150+ beds spread across 27 cities making it one of the top 3 hospital chains in India. Ahead of this merger, Aster shall purchase 5 per cent stake in QCIL from Blackstone and TPG in consideration of primary share issuance by Aster for 3.6 per cent stake (Initial Share Acquisition). Post the Initial Share Acquisition, QCIL will be merged into Aster by way of a scheme of amalgamation. Aster expects the merger transaction to close by Q3 FY26.

PanGIA Biotech announces partnership for first liquid biopsy prostate cancer assay in India

US-based PanGIA Biotech, a pioneer in liquid biopsy technology, has announced its first international partnership, collaborating with Canary Oncoceutics India in Tamil Nadu. This collaboration introduces the PanGIA Prostate Assay, the world's first artificial intelligence (AI)-integrated urine-based liquid biopsy for prostate cancer detection, marking its commercial debut in India. PanGIA Biotech is actively advancing its R&D pipeline, targeting ten additional cancers including lung, pancreatic, ovarian, and breast. The company is also focused on validating its multi-cancer assay and expanding its global impact through continued innovation, offering long-term growth potential for partners. The PanGIA platform is a transformative solution for detecting, monitoring, and managing diseases, including cancers as early as Stage 1. Powered by machine learning, this urine-based platform profiles biomolecular patterns to deliver accurate diagnostic insights.



Cipla brings revolutionary diabetes management solution to India

Mumbai-based pharma firm Cipla has announced regulatory approval from the Central Drugs Standard Control Organisation (CDSCO) for the exclusive distribution and marketing of Afrezza (insulin human) Inhalation Powder in India. Developed and manufactured by MannKind Corporation (USA), Afrezza offers a groundbreaking treatment designed to improve glycemic control in adults with diabetes mellitus. This partnership is set to transform diabetes care in India by introducing a patient-centric solution that is both innovative and convenient, empowering millions to manage their health with greater ease. Afrezza is the first and only rapid-acting insulin that can be inhaled, providing a non-injectable alternative for individuals with both type 1 and type 2 diabetes. Administered through an inhaler at the beginning of a meal, it quickly dissolves upon inhalation into the lungs, delivering insulin to the bloodstream. This process enables it to start working in as little as 12 minutes, closely mimicking the body's natural insulin response.

ICMR licenses EnViro-Q PCR Kit to Molbio Diagnostics for enteric virus detection

The Indian Council of Medical Research (ICMR) has signed a technology transfer agreement with Molbio Diagnostics, licensing the commercialisation of EnViro-Q, India's first multiplex real-time RT-PCR assay for detecting enteric viruses. Developed by ICMR-National Institute for Research in Bacterial Infections (NIRBI), Kolkata, this breakthrough diagnostic tool addresses a critical gap in managing viral gastroenteritis in children. Through this collaboration, Molbio Diagnostics aims to make EnViro-Q accessible worldwide, particularly in public health sectors, under a revenue-sharing model with ICMR. EnViro-Q will be made available at a cost-effective price, particularly for the public sector. As one of the leading causes of childhood mortality, viral gastroenteritis has posed persistent diagnostic challenges. Existing methods often misidentify viral infections as bacterial, leading to the irrational use of antibiotics. EnViro-Q, with comparable sensitivity and specificity to commercial imported assays, offers reliable results within 2-2.5 hours, ensuring timely diagnosis and treatment.

HCG and Accenture collaborate on cancer research and care using advanced AI

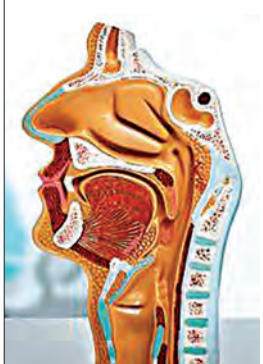
Bengaluru-based HealthCare Global Enterprises Limited (HCG), one of the largest cancer care networks in India, is collaborating with Accenture to accelerate cancer research and care through the use of advanced artificial intelligence (AI), including generative AI and deep learning on multi-dimensional and multi-omic patient data. This strategic teaming combines Accenture's global expertise and talent in data and AI including AI/ML, generative AI, and quantum computing with deep clinical insights from HCG in oncology to enable early detection and treatment for various types of cancer. As part of the joint effort, Accenture will use advanced technologies including image analysis software, informatics, and novel algorithms to analyse data from cancer patients and study molecular alterations that can have a broader impact on patient care. The programme, the first of its kind in South Asia, will leverage Accenture's generative AI studios to spur innovative research for the discovery and development of new drug targets, mechanisms and pathways, and biomarkers associated with different forms of cancer.

Strand Life Sciences introduces blood-based test for early detection of multiple cancers

Bengaluru-based genomics and bioinformatics company Strand Life Sciences, a subsidiary of Reliance Industries Limited, has launched a novel blood-based test for early detection of multiple cancers. Called CancerSpot, the test uses the latest globally accepted methylation profiling technology to identify cancer tumour DNA fragments. CancerSpot works off a simple blood sample and uses a proprietary genome sequencing and analysis process to identify DNA methylation signatures of cancer in the blood. CancerSpot's signatures, derived from Indian cohorts, have been shown to be robust and applicable across global ethnicities. The test provides a simple and convenient option for proactive and routine cancer screening. The launch complements the opening of Strand's new state-of-the-art Genomics Diagnostics & Research Centre in Bengaluru. This 33,000 square feet facility comprises a cutting-edge genomics laboratory with the latest sequencing technologies and workflows designed to foster collaboration among bioinformatics experts, molecular biologists, and clinical teams.

Dr. Reddy's launches Toripalimab for treatment of Nasopharyngeal Carcinoma in India

Hyderabad-based Dr. Reddy's Laboratories has announced the launch of Toripalimab in India. Toripalimab is a New Biological Entity (NBE). It is the only immuno-oncology drug approved by various regulatory authorities around the world such as United States Food and Drug Administration (USFDA), European Medicines Agency (EMA), Medicines and Healthcare products Regulatory Agency (MHRA), and others for the treatment of adults with recurrent or metastatic nasopharyngeal carcinoma (RM-NPC). In 2023, Dr. Reddy's entered into a license and commercialisation agreement with Shanghai Junshi Biosciences for Toripalimab. Under this agreement, Dr. Reddy's obtained exclusive rights to develop and commercialise Toripalimab in 21 countries including India, South Africa, Brazil and various countries in Latin America. Additionally, the agreement allows Dr. Reddy's to expand the scope of the license to cover Australia, New Zealand and nine other countries. With this launch by Dr. Reddy's, India becomes the third country in the world after China and the United States to receive access to this next generation PD-1 inhibitor.



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- No bacterial backbone
- Improved yield – minimized costs
- Minicircles in clinical trials
- Ready to use

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Mestastop Solutions receives Rs 2.66 Cr worth grant from BIRAC

Mestastop Solutions, a Bengaluru-based biotech company focused on stopping the spread of cancer, has been awarded Rs 2.66 crore grant by the Biotechnology Industry Research Assistance Council (BIRAC) under the focused call of 'establishment of preclinical models for drug discovery'. Mestastop will use the funds to develop both in vitro and in vivo models for metastasis-focused

drug discovery, focusing on triple-negative breast and oral cancer. The grant in aid will complement Mestastop's contribution of Rs 1.21 crore. This grant comes at a time for Mestastop, which plans to start its first Phase 2A clinical trial in India next year and is also working on MoUs with European hospitals. The biotech startup is progressing with drug discovery programmes, with its first hit series against a novel-first-in-class target showing a 100 per cent efficacy against metastasis in high-throughput in vivo models.

Anabio Technologies acquires Microbe Investigations in Switzerland

Anabio, a Bengaluru-based femtech startup innovating in the menstrual hygiene space, has announced its acquisition of Microbe Investigations Switzerland (MIS), a Zurich-based company in microbial research and diagnostics. The announcement was made recently at a special event hosted at Swissnex, marking a new era of collaboration between India and Switzerland in advancing biotechnology innovation. Founded in 2017 in a garage in Hartford, Connecticut, USA, and relocated to Bengaluru, in 2018, Anabio has grown into a global innovator. With this acquisition, the company takes a significant step toward expanding its footprint and expertise in microbial diagnostics, microbiome research, and sustainable applications across multiple sectors. MIS, a spinoff from ETH Zurich, is a boutique Contract Research Organisation (CRO) specialising in microbiology, virology, and entomology services. It caters to a wide range of industries, including textiles, disinfectants, plastics, paints, biopharma, insecticides, and pesticides, serving clients from over 75 countries. The acquisition positions MIS to scale its operations and align with Anabio's vision for global growth.

C-CAMP collaborates with UMass Venture Development Center & TiE Boston

Bengaluru-based Centre for Cellular and Molecular Platforms (C-CAMP) has entered into a partnership with the University of Massachusetts (UMass) Venture Development Center and TiE Boston to promote innovation and entrepreneurship in healthcare, life sciences, and biotechnology domains through an Indo-US Corridor. The Corridor is envisioned to catalyse the growth of life sciences venture in both ecosystems. The India-US Life Sciences & Healthcare Venture Growth Corridor will facilitate linkages between the two ecosystems anchored by C-CAMP and UMass to advance the vibrant scientific research the two are reputed for; enable co-development of innovation-led products and technologies towards commercialisation; leverage each other's entrepreneurial ecosystem to nurture and accelerate ideation, startup creation, and growth of early-stage startups. The infrastructural ties arrived at are co-incubation and soft-landing for startups and SMEs in each other's ecosystems, access to mutual technology capabilities and scientific expertise, and investments in associated startups, especially in biopharma and biotech, facilitated by TiE Boston.

WHO report reveals governments deprioritising health spending

The 2024 Global Heath Expenditure Report by the World Health Organization (WHO) shows that the average per capita government spending on health in all country income groups fell in 2022 from 2021 after a surge in the early pandemic years. The report entitled, 'Global spending on health emerging from the pandemic' has been published in alignment with the Universal Health Coverage (UHC) Day campaign marked annually on December 12. The campaign's focus for 2024 is on improving financial protection for people everywhere to access health services they need. Government spending on health is crucial to delivering UHC. Its deprioritisation can have dire consequences in a context where 4.5 billion people worldwide lack access to basic health services and 2 billion people face financial hardship due to health costs. The challenges posed by the lack of financial protection for health are not limited to lower-income countries. Even in high-income countries, out-of-pocket payments lead to financial hardship and unmet need, particularly among the poorest households.

WHO announces first prequalification of TB diagnostic test

The World Health Organization (WHO) has granted prequalification to the molecular diagnostic test for tuberculosis (TB) called Xpert MTB/RIF Ultra. It is the first test for TB diagnosis and antibiotic susceptibility testing that meets WHO's prequalification standards. WHO prequalification of this test is expected to assure quality of diagnostic tests used to improve access to early diagnosis and treatment. It complements WHO's endorsement approach, which is grounded in emerging evidence, diagnostic accuracy, and patient outcomes alongside considerations for accessibility and equity, with prequalification requirements on quality, safety, and performance. WHO's assessment for prequalification is based on information submitted by the manufacturer, Cepheid Inc., and the review by Singapore's Health Sciences Authority (HSA), the regulatory agency of record for this product. Designed for use on the GeneXpert Instrument System, this nucleic acid amplification test (NAAT) Xpert MTB/RIF Ultra detects the genetic material of Mycobacterium tuberculosis, the bacterium that causes TB, in sputum samples, and provides accurate results within hours.

International Pathogen Surveillance Network announces first recipients of grants

The World Health Organization (WHO) and partners announced 10 projects that will receive almost $2 million in grants to improve capacities in pathogen genomic surveillance. The catalytic grant fund was established by the International Pathogen Surveillance Network (IPSN) to support partners from low- and middle-income countries to build their capacities in pathogen genomic analysis. This technology analyses the genetic code of viruses, bacteria and other disease-causing organisms to understand, in conjunction with other data, how easily they spread, and how sick they can make people. This data allows scientists and public health teams to track and respond to infectious disease threats, supports the development of vaccines and treatments and empowers countries to take faster decisions. The fund is hosted by the United Nations Foundation and supported by the Bill & Melinda Gates Foundation, The Rockefeller Foundation and Wellcome. One of the recipients, the American University of Beirut, will use wastewater surveillance to study how diseases spread in refugee populations, helping to ensure that people can quickly receive the care and support they need in migration settings.

Indian Pharma Hits R&D Salvo

Pharma companies are constantly on the quest to discover the next big game-changer drug or therapeutic by leveraging the latest, cutting-edge innovation. While it is notable that biopharma companies eased up on their research and development (R&D) spending in FY 2022-23 after the world was hit by COVID-19-induced economic slowdown, the budget for R&D has witnessed a steady increase. Departing a bit from their traditional drug portfolios, companies are increasingly focusing on R&D in next-generation therapies to drive innovation, particularly in complex generics, biosimilars, cell and gene therapies and novel drug delivery systems.

Indian pharmaceutical companies tend to allocate 5-10 per cent of their total revenue for R&D, a trend that aligns with other leading Asian companies, which also invest a similar percentage in R&D. The total R&D expenditure of the Top 10 listed pharma companies by market capitalisation, as per GlobalData based on their Annual Reports for FY 2023-24 touch Rs 137.1 billion for 2023-24 with an average expenditure of Rs 13.71 billion with an average percentage of 5.9 per cent.

Dr. Reddy's Laboratories leads in R&D investment, dedicating 8.2 per cent of its revenue to R&D. This significant investment reflects the company's focus on developing complex generics, biosimilars, and new drug formulations, with an emphasis on expanding its global presence, especially in the US market. Similarly, Biocon Ltd invests 7.39 per cent of its revenue, underlining its strategic push in biosimilars.

Sun Pharmaceutical Industries, the largest player in terms of revenue, allocates 6.37 per cent of its revenue to R&D, translating to a significant absolute spend of Rs 31.78 billion. The company is heavily focused on expanding its specialty pipeline, including dermatology and oncology treatments. Zydus Lifesciences also spends 6.7 per cent, aligning its R&D efforts with complex generics and biosimilars, with a focus on expanding its global portfolio.

On the other hand, companies like Cipla Ltd and Lupin Ltd allocate 6.1 per cent and 7.63 per cent of their revenues to R&D, respectively. Cipla's spending supports its growth in respiratory and oncology therapies, while Lupin continues to invest in differentiated products and complex generics.

Torrent Pharmaceuticals, Alkem Laboratories, Aurobindo Pharma and IPCA Laboratories, have relatively lower R&D spending in percentage terms and maintain a focus on cost-effective strategies and process innovation. In the following pages we will be featuring the profiles of Top 10 pharmaceutical companies with their R&D expenditure for 2023-24. BS

Ayesha Siddiqui

R&D Expenditure: Top 10 Indian Pharma Firms (for 2023-24)*

Sr. No.	Company	Total revenue (in Rs billion)	R&D spend (in Rs billion)	% of total revenue
1	Dr. Reddy's Laboratories Ltd	279.16	22.87	8.19
2	Lupin Ltd	200.11	15.27	7.63
3	Biocon Ltd	156.21	11.54	7.39
4	Zydus Lifesciences Ltd	195.47	13.1	6.7
5	Sun Pharmaceutical Industries Ltd	498.51	31.78	6.37
6	Cipla Ltd	257.74	15.71	6.1
7	Aurobindo Pharma Ltd	290.02	14.71	5.07
8	Torrent Pharmaceuticals Ltd	107.28	5.27	4.91
9	Alkem Laboratories Ltd	126.68	5.23	4.13
10	IPCA Laboratories Ltd	62.78	1.62	2.58

*based on % of total revenue

Dr. Reddy's Laboratories Ltd

TOTAL REVENUE

₹279.16 Billion

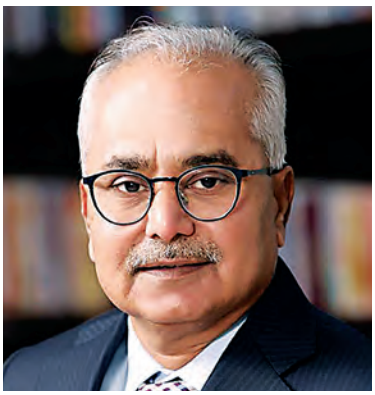
R&D SPEND

₹22.87 Billion

FY24 proved to be a strong year for Dr. Reddy's, with total revenues growing by 14 per cent to Rs 279.16 billion. This growth was driven by an increase in base business volumes, new product launches across various segments, and favourable foreign exchange rate gains. However, it was partially offset by price erosion in the Generic Generics (GG) segment markets, particularly in North America and Europe, as well as the divestment of certain non-core brands in India during the previous year.

R&D expenses for FY24 totalled Rs 22.87 billion, representing 8.19 per cent of revenue, up from 7.9 per cent in FY23. The 18 per cent year-on-year increase was primarily due to a rise in the number of filings and the company's developmental efforts to build a robust pipeline of complex products, including both small molecules and biosimilars. Dr. Reddy's remains one of the top spenders on R&D in India, underscoring its commitment to innovation and strengthening its product portfolio across global markets.

The company entered an exclusive license agreement with Wellington Zhaotai Therapies to develop and commercialise WL-002, a Chimeric Antigen Receptor-T (CAR-T) cell therapy asset, in India. Moreover, Dr. Reddy's CAR-T asset DRL-1801 was approved for clinical trials in India, marking a significant step forward in its oncology pipeline. BS



Strategic collaborations played an important role in helping us introduce the latest generation of treatments to patients in India, both in our current core business as well as future growth drivers.
- G V Prasad,
Co-Chairman and Managing Director

On the R&D front, we have continued to pivot to more complex products, especially inhalation and complex injectables where we have invested close to 50 per cent of our R&D spend during the year. We intend to maintain our lead on the respiratory front by being the first to bring products on key platforms to developed markets. Complex products today constitute around 40 per cent of our US portfolio, which we expect to grow to above 50 per cent in the next few years. In FY24, more than 80 per cent of the new product sales in the US were from non-oral-solid products.

- Vinita Gupta,
CEO

Lupin Ltd

TOTAL REVENUE

₹200.11 Billion

R&D SPEND

₹15.27 Billion

In FY 2023-24, the company reported total revenue from operations of Rs 200.11 billion. The strategic shift towards complex generics has been a key driver of success, with the North American business seeing remarkable growth. Sales in North America increased by 33.8 per cent, reaching Rs 72.462 billion, up from Rs 54.173 billion the previous year. Complex generics accounted for around 40 per cent of these sales, and the inhalation portfolio saw a doubling in sales over the previous year.

Investments in R&D and strategic acquisitions remain crucial to sustaining the company's growth trajectory. In FY24, R&D investment increased significantly to Rs 15.264 billion, up from Rs 12.8 billion in the previous year. The company has continued to pivot towards more complex products, particularly inhalation therapies and complex injectables, with nearly 50 per cent of its R&D spend allocated to these areas. The company aims to maintain its leadership in the respiratory segment, with a focus on being first to market with key products in developed markets. Currently, complex products make up around 40 per cent of the U.S. portfolio, a figure the company expects to grow to over 50 per cent in the coming years. In FY24, over 80 per cent of new product sales in the U.S. were from non-oral solid products.

The company's robust R&D efforts led to 33 filings, 63 approvals, and 41 launches globally. Key product launches included Tiotropium, Diazepam Rectal Gel, and generic Prolensa in the U.S., as well as Vilfuro-G and Difizma in India. The company also filed complex products, such as Risperidone Long-Acting Injection, further highlighting its commitment to delivering innovative and much-needed solutions to patients. A notable milestone during the year was the FDA's approval of the company's Nagpur injectable facility, enhancing its capabilities in complex generics and biosimilars. Strategic acquisitions, including Medisol in France, Ondero, and Menarini, have further strengthened the company's position, expanding its complex generics portfolio and enhancing its presence in the injectable markets, particularly in Europe.

The company's R&D focus has also driven growth in India, with several new product launches in the India region formulations segment. Lupin India's new product launches (NPLs) recorded the highest sales in the industry in FY24. The company's 7 global R&D centres, supported by a dedicated team of over 1,400 scientists, provide a competitive advantage by enabling faster and more efficient product development, helping to make therapies more accessible to patients worldwide. BS

Biocon Ltd

TOTAL REVENUE

₹156.21 Billion

R&D SPEND

₹11.54 Billion

In FY24, Biocon demonstrated steady growth across its business segments, with total consolidated revenue increasing by 35 per cent to Rs 156.21 billion. This growth was bolstered by income from the divestiture of the Branded Formulations India business in Biocon Biologics for Rs 3.5 billion, as well as Rs 5.31 billion from stake dilution and fair value gains in Bicara, following a fundraise during the year.

Revenue from operations grew by 32 per cent to Rs 147.56 billion, driven by a 58 per cent increase in Biosimilars revenue, a 9 per cent rise in Research Services, and a 1 per cent growth in Generics.

The company prioritised strategic investments in R&D, with net R&D investments rising by 3 per cent to Rs 11.54 billion, which represents 10 per cent of Biocon's revenues excluding Syngene. Of this, Rs 2.37 billion ($29 million) was allocated to Generics (8 per cent of Generics segment revenues), while Rs 9.108 billion (~$110 million) was invested in Biosimilars (10 per cent of Biosimilars segment revenues).

Looking ahead to FY25, Biocon plans to continue its R&D focus, with investments expected to be around 8-9 per cent of revenues for both Generics and Biosimilars. In Generics, the company aims to expand its portfolio of complex, vertically integrated products, such as peptides, GLPs, fermentation APIs, HPAPIs, and injectables. The firm plans to spend about $60-70 million on API capacity expansion, particularly for peptides, HPAPIs, and non-immunosuppressant fermentation products. Additionally, Biocon is investing in a greenfield injectables facility in Bengaluru and expanding its recently acquired oral solid dosage facility in the US.

For Biosimilars, Biocon's primary investment focus is on Phase II of its facility in Malaysia, aimed at increasing insulin Drug Substance and Drug Product capacities to meet growing demand. This investment is expected to be around $100 million.

In Research Services, Biocon plans to invest approximately $60 million during FY25, with about 50 per cent directed toward capacity and capability development. The remainder will be allocated to expanding its CDMO business. BS

FY24 marked the conclusion of a five-year strategy plan, defined in 2019, with initiatives that helped us build a strong foundation for future growth. We strengthened our R&D capabilities, grew our product pipeline, especially in peptides, Highly Potent APIs (HPAPIs) and fermentation, expanded our manufacturing capacities, simplified processes and successfully implemented several digital transformation initiatives.

- Siddharth Mittal,
CEO & Managing Director

Zydus Lifesciences Ltd

TOTAL REVENUE

₹195.47 Billion

R&D SPEND

₹13.1 Billion

The company achieved a strong 13 per cent growth in total income from operations, reaching Rs 195.47 billion, up from Rs 172.4 billion in the previous year. The US formulations business, the largest contributor to consolidated revenues, grew by 17 per cent, generating Rs 86.851 billion. The Indian market, which includes both formulations and consumer wellness businesses, was the second-largest contributor, growing by 7 per cent to Rs 76.707 billion.

Investments in R&D have steadily increased, particularly in recent years as differentiated products have advanced into clinical phases. The company's innovation efforts are led by over 1,400 researchers across eight state-of-the-art R&D centres. R&D investments amount to approximately 7-8 per cent of annual revenues, reflecting the company's focus on driving innovation and staying ahead of industry trends. For FY 2023-24, the company's R&D spend amounted to Rs 13.096 billion, nearly 6.7 per cent of the total revenue. Technological advancements, digitalisation, and improved competencies further enable the company to expand into areas such as new chemical entities (NCEs), vaccines, biosimilars, niche technologies, and generic product development.

A significant portion of the company's R&D efforts is focused on building a generics pipeline, with a growing emphasis on differentiated products across various dosage forms, including drug-device combination products. The generics R&D is primarily centralised at the Pharmaceutical Technology Centre (PTC) in Ahmedabad, India, which is responsible for the development of generic dosage formulations for global markets, including the US, India, Europe, and emerging markets. BS

Sun Pharmaceutical Industries Ltd

TOTAL REVENUE

₹498.51 Billion

R&D SPEND

₹31.98 Billion

In FY24, Sun Pharma, one of the top drug manufacturers in the country, reported a 10.4 per cent growth in global consolidated revenues, reaching Rs 498.51 billion. Sun Pharma continued to strengthen its commitment to innovation by investing 6.37 per cent of global revenues into R&D totalling Rs 31.98 billion. With a dedicated R&D team of over 3,000 professionals across six global centres, the company filed over 250 formulation dossiers globally during the year. Sun Pharma's competitive edge lies in its expertise in developing innovative products, technologically intensive generics, Active Pharmaceutical Ingredients (APIs), and Novel Drug Delivery Systems (NDDS). A key focus for the company is the growth of its global specialty pipeline, which continues to drive its strategic initiatives and long-term growth.

To support this, the company took strategic steps, including establishing an in-house clinical organisation and recruiting top talent to lead clinical development efforts. These initiatives are aimed at improving study enrollment and expanding the company's specialty assets beyond the US. Sun Pharma is among the top spenders on R&D and has also been actively scouting for external R&D assets to further enhance its pipeline. The company's specialty R&D expenditure saw a significant rise, reaching $148 million in FY24, up from $65 million in FY20. This increase accounted for 78 per cent of the total R&D growth during this period. Sun Pharma's growing investment in its specialty business underscores its commitment to advancing existing projects and enriching its pipeline in core therapeutic areas.

Looking ahead to FY25, Sun Pharma expects a high single-digit consolidated topline growth. The company anticipates continued momentum in its Global Specialty business, which remains a key driver of growth. Sun Pharma's R&D spending has been on an upward trajectory, primarily driven by increased clinical study investments to advance its global specialty pipeline. For FY25, the company projects its R&D expenditure to range between 8 and 10 per cent of sales, with an increasing portion of this spend allocated to specialty products, reflecting the continued emphasis on innovation and the expansion of its specialty portfolio. BS

This year, we made further investments towards enhancing our capabilities in the Global Specialty business. We made critical hires in several functions, some of which are visible as new additions to the senior management team. Specifically, our focus has been to improve our in-house clinical development capabilities for which we are building a clinical organisation, globalising our Specialty assets beyond the US, and deepening our business development capabilities.

- Dilip Shanghvi,
Chairman and Managing Director

We are investing heavily in new-age tech-based solutions like CAR-T cell therapy, peptides, oligonucleotides and biosimilars that we believe will create a large-scale impact in the future. By leveraging AI's predictive capabilities, we continue to foster innovation and efficiency across R&D processes. We will continue to further our digital initiatives to create better and more efficient patient outcomes.

- Umang Vohra,
Managing Director and Global Chief Executive Officer

Cipla Ltd

TOTAL REVENUE

₹257.74 Billion

R&D SPEND

₹15.71 Billion

Cipla reported a total revenue of Rs 257.74 billion and made significant strides in advancing its R&D capabilities in FY 2023-24. The company invested 6.1 per per cent of its consolidated revenue, amounting to Rs 15.71 billion in R&D, reflecting a year-on-year (YoY) growth of approximately 17 per cent. With a strong IPD team of over 1,700 professionals supporting complex product development, Cipla evaluated more than 40 molecules and initiated 31 clinical trials involving over 1,000 patients across 80+ study sites nationwide.

Cipla's R&D expenditure has shown consistent growth over the past four years, rising from Rs 9.24 billion in FY 2020-21 to Rs 15.71 billion in FY 2023-24. To further bolster its R&D efforts, the company has formed strategic partnerships with leading pharma organisations and academic institutions. Key collaborations include partnering with an AI consultancy to support population pharmacokinetic modelling and simulation, which enhances the company's capabilities in innovative projects. Additionally, Cipla is working with a partner to develop a connected smart device that helps patients and healthcare providers monitor inhalation techniques accurately, advancing both disease treatment and product development. The company is also collaborating with international research organisations to develop new inhaler devices and improve inhalation therapies. BS

Aurobindo Pharma Ltd

TOTAL REVENUE

₹290.02 Billion

R&D SPEND

₹14.71 Billion

In FY 2023-24, the company achieved a significant milestone, recording its highest-ever revenue of Rs 290.02 billion. The revenue growth was primarily driven by a strong performance in the US formulations business, which grew by 23 per cent, reaching Rs 138.67 billion (excluding sales from Puerto Rico). This growth was fueled by volume gains, stable demand, and successful new product launches. Notably, revenue from oral generic products in the USA increased by 18 per cent, reaching $1.078 billion, while revenue from the injectable and specialty business surged by 38 per cent, reaching $397 million. Overall, global injectable and specialty sales saw a robust year-on-year growth of 31 per cent, totalling $541 million.

The company's R&D investment in FY 2024 was Rs 14.71 billion, marking a continued commitment to innovation and development. This investment supported the filing of 31 ANDAs (Abbreviated New Drug Applications) across a diverse range of products. The company also received final approval for 39 ANDAs, including 7 that had previously received tentative approval from the US FDA.

A key highlight of the year was the integration of advanced computer-aided simulations into the R&D process. This shift in research methodologies has significantly enhanced product development efficiency and efficacy, driving further advancements in the company's pipeline.

Looking ahead, the company remains focused on bringing affordable and high-quality medicines to market. It continues to leverage its robust in-house R&D capabilities and cutting-edge technologies to develop complex generics, including nasal, topical, transdermal, and Metered Dose Inhalers (MDI). Additionally, the FDF (Finished Dosage Forms) team is committed to advancing 505(b)(2) projects to address unmet medical needs and expand the company's presence in the global market. BS

"India's robust fundamentals and supportive policies enabled us to stay resilient and contribute to economic growth in a continuously evolving macro-economic environment."
- K Nithyananda Reddy,
Vice Chairman & Managing Director

IPCA Laboratories Ltd

TOTAL REVENUE

₹62.78 Billion

R&D SPEND

₹1.62 Billion

IPCA Laboratories Ltd achieved a total income of Rs 62.78 billion on a standalone basis, reflecting a 6 per cent growth compared to Rs 59.26 billion in the previous year. On a consolidated basis, the company saw a significant 23 per cent increase in total income, reaching Rs 78.30 billion, up from Rs 63.70 billion in the previous financial year.

In FY 2023-24, IPCA's R&D expenditure amounted to Rs 1.615 billion representing 2.58 per cent of its total revenue, slightly down from Rs 1.57 billion (2.71 per cent of turnover) in the previous year. The company's R&D activities are led by qualified and experienced scientists and engineers, with a focus on the development of new and innovative processes and products for manufacturing APIs with non-infringing processes. In addition to developing new dosage forms and drug delivery systems, IPCA is also focused on improving existing processes, enhancing yields, and reducing costs. BS

The global pharmaceutical industry witnessed a notable surge in spending in 2023, indicating a positive trajectory for medicine expenditure through 2028, fuelled by strong growth in emerging markets.
- Samir Mehta,
Executive Chairman

Torrent Pharmaceuticals Ltd

TOTAL REVENUE
₹107.28 Billion

R&D SPEND
₹5.27 Billion

In FY 2023-24, the company reported a total revenue of Rs 10,728 billion, with R&D expenses amounting to Rs 5.27 billion, representing around 5 per cent of its total revenue. This investment in research and development is aimed at advancing the company's portfolio, particularly in specialty complex generics. As part of its strategic focus on oncology, the company plans to file one oncology product in both the US and the EU. Additionally, its pipeline includes complex generics, injectables, etc. During the year, the company launched a CGT (Cell and Gene Therapy) status product in the US, with 180 days of exclusivity. The company's focus on New Drug Delivery Systems (NDDS) is driving innovation in its pipeline, with a focus on repositioning existing drugs through new technology platforms. These platforms aim to design products with different dosage forms, strengths, or routes of administration to address unmet needs. The goal is to enhance the performance of these drugs in terms of efficacy, safety, and patient compliance by improving bioavailability, enabling targeted drug delivery, reducing dosage and frequency, and ensuring quicker onset and longer duration of action. NDDS products are an important part of the company's future growth strategy. BS

In addition to being a leading manufacturer of prescription medicines, we have emerged as one of the largest players in the trade generics segment. During the year, trade generics contributed around 20 per cent of our total domestic business. Better pricing and an improved product mix enabled us to enhance margins in our trade generics business.
- Dr Vikas Gupta,
Chief Executive Officer

Alkem Laboratories Ltd

TOTAL REVENUE
₹126.68 Billion

R&D SPEND
₹5.23 Billion

Alkem Laboratories reported a strong revenue of Rs 126.68 billion from operations in FY 2023-24. Alkem's robust R&D infrastructure spans multiple R&D centres and houses a team of approximately 665 scientists, dedicated to developing generics, biosimilars, transdermal drug delivery systems, oral films, and Novel Drug Delivery Systems (NDDS). In FY 2023-24, the company allocated Rs 5.23 billion to its R&D pipeline, representing 4-4.5 per cent of overall sales, with a strategic shift towards biosimilars and complex molecules in response to evolving industry dynamics and emerging opportunities. BS

Telangana's Bid to Achieve Positive Investment Growth

Hyderabad continues to be a global center for generic drugs and vaccines despite the fact that Telangana's pharmaceutical industry has seen ups and downs throughout the years due to proactive industry policies, initiatives, and state government actions. With the pharmaceutical industry in India expected to grow to $120–130 billion by 2030, Telangana plays a pivotal role in advancing global healthcare solutions.

Telangana state overcoming various hurdles and challenges is rapidly strengthening its position as a global leader in the life sciences and Active Pharmaceutical Ingredients (API) sectors. In the past year from November 2023 to December 2024, the state government succeeded in attracting investments worth Rs 36,000 crore and Rs 5,260 crore in life sciences and API sectors respectively.

With over 140 projects in the pipeline, these investments in the life sciences sector are set to generate 51,000 direct jobs and an additional 1,50,000 indirect jobs, showcasing the state's exceptional growth trajectory in the coming days ahead. Speaking on this remarkable achievement, Telangana's Industries and Commerce Minister, Duddilla Sridhar Babu, emphasized the state's proactive policies and strategic vision. "Telangana has emerged as the epicentre for global life sciences innovation. This momentum includes both significant investments from new entrants and additional investments by existing companies that recognise the value of expanding in Telangana. This is a testament to the business-friendly approach of our government and the strong ecosystem we have built over decades," Babu stated.

Genome Valley: At the Heart of Innovation

The cornerstone of Telangana's success in the life sciences sector lies in Genome Valley, India's first and largest R&D cluster. This hub continues to attract global industry leaders, driving significant investments and expansions. Over the past year, Genome Valley has witnessed remarkable developments, solidifying its reputation as a global innovation centre for pharmaceuticals and biotechnology.

Among the key investments, KrKA (Europe) and Laurus Labs jointly committed Rs 2,000 crore to establish state-of-the-art facilities for pharmaceutical finished products and biopharmaceutical manufacturing. In addition, Laurus Labs inaugurated a cutting-edge R&D centre with an investment of Rs 250 crore, creating employment opportunities for 2,800 people.

In a noteworthy partnership, Takeda (Japan) collaborated with Biological E to manufacture 5 crore doses of the dengue vaccine annually. This initiative has further reinforced Hyderabad's reputation as the Vaccine Capital of the World.

Another milestone was achieved with Rx Propellant and Terminus Group announcing a Rs 2,000 crore investment to develop 20 lakh square feet of world-class laboratory space within Genome Valley, expected to generate 10,000 new jobs. Additionally, the Telangana government partnered with Thermo Fisher Scientific, which plans to establish the country's first scale-up biological manufacturing facility and bioprocess design centre in Genome Valley, marking another significant breakthrough for the region.

Adding to this momentum, Miltenyi Biotec from Germany is setting up a world-class Cell and Gene Therapy facility, enhancing Hyderabad's global profile in advanced medical research. Meanwhile, Aragen, one of India's leading Contract Research and Development/Manufacturing Organizations (CRO/CDMO), has announced a Rs 2,000 crore expansion plan in Nacharam, which will create 1,000 new jobs and further strengthen its presence in Telangana.

Other notable investments include expansions by global players such as Switzerland-based Ferring Pharma, Germany-based DFE Pharma, and USA-based Vivint Pharma, all of which are bolstering their operations in Genome Valley. These investments collectively underline Telangana's rising prominence as a global leader in life sciences and innovation.

Global Capability and Innovation Centers

In addition to manufacturing facilities, Hyderabad is rapidly emerging as a preferred destination for Global Capability and Innovation Centers (GCICs), attracting leading companies from across the world. Over the past year, several prominent

"Telangana has emerged as the epicentre for global life sciences innovation. This momentum includes both significant investments from new entrants and additional investments by existing companies that recognise the value of expanding in Telangana. This is a testament to the business-friendly approach of our government and the strong ecosystem we have built over decades."

- Duddilla Sridhar Babu,
Minister for Industries & Commerce,
Government of Telangana

"Hyderabad has created a niche for itself as the hotspot for GCCs, attracting investments across the life sciences and healthcare value chain, including pharma, biotech, medtech, and health insurance."

- Jayesh Ranjan,
Principal Secretary, Industries,
Government of Telangana

"The state government is eager to expand the pharmaceutical sector in the rural areas. Accordingly, an MoU has been signed with the government to set up new units and expand existing facilities in the proposed upcoming Greenfield industrial areas."

- Satish Reddy,
Chairman, Dr. Reddy's Laboratories

announcements have highlighted the city's growing importance as a hub for innovation and technology.

Amgen, a global biotechnology leader, is establishing one of its largest innovation centres worldwide in Hyderabad. This facility, designed to accommodate 3,000 employees, underscores the company's ambitious expansion plans in the region. Similarly, Zoetis, the world's largest animal health company, recently inaugurated a cutting-edge technology and innovation centre in the city, further enhancing Hyderabad's reputation as a centre for excellence in research and innovation.

Adding to the momentum, Olympus, a Japanese medical technology giant, is setting up an engineering and R&D centre in Hyderabad. This facility is expected to employ around 500 people, driving advanced medical technology solutions. Meanwhile, HCA Healthcare, America's largest healthcare systems provider, is building a large campus in the city to bolster its operational capabilities.

In another significant development, Cigna, a Fortune 16 health services provider, is expanding its presence in Hyderabad through its subsidiary, Evernorth Health Services. The company is setting up a massive campus in the city, reinforcing its commitment to innovation and customer-focused solutions.

Hyderabad's growing appeal has also drawn investments from companies such as ModMed from Canada and RxBenefits from the USA, among others. These developments further highlight the city's transformation into a global hub for innovation, driven by world-class infrastructure and a thriving ecosystem for research and development.

Telangana's growth is not limited to new entrants. In the past year, existing industry giants like Medtronic, which established its first IT centre outside the USA in Hyderabad with a Rs 500 crore investment, continue to scale up their operations. Companies such as Sanofi, Bristol-Myers Squibb (BMS), and Providence are further expanding their already significant presence, demonstrating their confidence in Hyderabad's business ecosystem.

As Hyderabad continues to attract new investments and foster innovation, the city is poised to remain at the forefront of the global life sciences industry. From cutting-edge R&D facilities to large-scale manufacturing and innovation hubs, Hyderabad is setting benchmarks that underscore its status as a world-class destination for life sciences.

Expressing satisfaction with the city's ability to attract and retain major players in the life sciences sector, the minister said, "We are proud to see Hyderabad emerging as a global hotspot for life sciences innovation. The continued investments and expansions by industry leaders reaffirm the trust in Telangana's robust infrastructure and business-friendly policies."

New Life Sciences Policy on the Horizon

Telangana's strategic focus extends to the intersection of life sciences and technology. Hyderabad, with its deep talent pool in

pharmaceuticals, biotechnology, artificial intelligence, and digital health, has become a prime destination for Global Capability Centers (GCCs) in healthcare and life sciences.

The state government has launched a Life Sciences GCC Consortium to power curriculums of science courses with technologies such as Artificial Intelligence (AI). At present, 40 life sciences companies are the members of the consortium. The course designed by the consortium will support science students to secure jobs at GCCs.

The minister noted that the course will be introduced based on a hybrid model. Firstly, GCC companies like Dr. Reddy's Laboratories will undertake training related to their vertical at the Young India Skills University, secondly, these GCCs will connect with the Skills University for training in new niche areas, and thirdly, a subject will be introduced in the curriculum of colleges.

"Hyderabad has created a niche for itself as the hotspot for GCCs, attracting investments across the life sciences and healthcare value chain, including pharma, biotech, medtech, and health insurance," said Jayesh Ranjan, Principal Secretary, Industries, Government of Telangana.

The state is preparing to launch a dedicated life sciences policy, aimed at streamlining processes, fostering innovation, and driving sustainable growth in the sector. "This policy will further consolidate Telangana's position as a vital node in the global life sciences value chain," added Ranjan, highlighting the government's commitment to building a robust and inclusive ecosystem.

Strategic Initiatives and Investments

With Telangana already a strong base for bulk drugs and Active Pharmaceutical Ingredient industries, the state contributes more than 30 per cent of India's total API exports. Telangana plays a crucial role in India's API manufacturing landscape, contributing significantly to both domestic production and exports. With its strategic initiatives and continued investment in infrastructure and talent development, the state is poised to enhance its position further in the global pharmaceutical supply chain. While Telangana has witnessed massive investments in the life sciences segment, the chemical, API, and bulk drug industries have experienced a similar surge. In the past year, several API manufacturing companies in Hyderabad have expressed plans to set up new units and expand existing facilities.

In November 2024, representatives of top pharma companies who met Chief Minister Revanth Reddy, signed a Memorandum of Understanding (MoU) with the state government, pledging investments into new Greenfield industrial clusters to the tune of over Rs 5260 crore in the state.

Top investors from the API industry include Dr. Reddy's Labs, Laurus Labs, Gland Pharma, MSN Laboratories and Hetero Group. These companies, apart from expressing their intent to invest, have also promised to employ over 12,500 people in the state. Confirming this, Satish Reddy, Chairman of Dr. Reddy's Laboratories, said, "Our recent meeting with the Chief Minister had been positive. The state government is eager to expand the pharmaceutical sector in the rural areas. Accordingly, an MoU has been signed with the government to set up new units and expand existing facilities in the proposed upcoming Greenfield industrial areas."

Overcoming Challenges

Earlier plans for the Integrated Hyderabad Pharma City faced delays due to legal disputes and protests over land acquisition. The new government's decentralised strategy aims to balance regional development while mitigating challenges. IT and Industries Minister Sridhar Babu stated, "We are identifying land along the ORR with infrastructure for Greenfield Pharma clusters, ensuring balanced regional growth."

While the state is witnessing significant growth and new investments in the pharmaceutical sector on one hand, it is also grappling with challenges in land acquisition for setting up these projects. For instance, as part of the state government's plan to establish a Pharma Industrial Cluster in the Kodangal region, it faced strong resistance from the local population.

One notable incident occurred in Lagacherla village, where a public hearing organised to seek consent for acquiring 1300 acres of land from farmers turned violent. During the meeting, residents attacked the district collector and other officials, expressing their opposition to the proposed Pharma Industrial Corridor. As a result of this fierce backlash, the state government was forced to cancel the proposal for the Pharma corridor and instead proposed setting up an industrial cluster.

Even though the pharma industry has witnessed ups and downs, over the past many years in Telangana, with proactive industry policies, initiatives and measures from the state government, Hyderabad remains a global hub for generic pharmaceuticals and vaccines. With India's pharma market projected to reach $120–130 billion by 2030, Telangana plays a pivotal role in advancing global healthcare solutions. BS

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“We are focusing on developing 10 'Pharma Villages' to decentralise pharma production, taking manufacturing closer to rural areas”

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Jayesh Ranjan,
Principal Secretary,
Department of IT
and Industries,
Telangana

With the Revanth Reddy led Telangana government completing its first year in office, Jayesh Ranjan, Principal Secretary of the Department of IT and Industries, shares his optimism about Telangana’s future as a vibrant industrial hub. Particularly in life sciences and pharmaceuticals, the state has made significant strides in attracting investors. In this candid conversation, Jayesh Ranjan highlights the government’s initiatives, investor-friendly policies, and plans to boost the state’s industrial growth further and solidify its position as a national leader in innovation and manufacturing. ***Edited excerpts;***

What key initiatives and strategic changes is the Telangana government implementing to attract investments in the pharmaceutical and biotech sectors, and how do these differ from previous policies like TS-iPASS?

Ever since the new government led by Chief Minister A Revanth Reddy took charge in November 2023, over the past year, the government has taken various measures to support the existing industries and at the same time attract new investments in pharma, life sciences and other allied industrial sectors. Telangana state has a well-established pharma and biotech base with supporting academic and research institutions under public and private sectors providing the necessary skilled manpower needed for the industries. This is the main advantage for us to pull in more domestic and global investors to the state. In the past year, we could successfully attract investments worth over Rs 36,000 crore in the life sciences sector. These investments span more than 140 projects and include contributions from both Indian companies and global organisations. This highlights Telangana's commitment to building a business-friendly and supportive environment for the life sciences industry.

The government is now preparing to launch a new life sciences policy, which promises to streamline processes and simplify regulations for companies interested in starting or expanding their operations in the state. This upcoming policy will also offer special incentives to attract more investments, ensuring businesses can operate smoothly and efficiently.

The new framework has been carefully designed to meet the changing needs of the life sciences industry. It builds on the successes of Telangana's earlier initiatives, such as TS-iPASS, but offers significant improvements to further boost growth. By addressing gaps and evolving alongside industry trends, Telangana aims to solidify its position as a leading hub for life sciences innovation and manufacturing.

What are your insights into the recent interest from pharmaceutical and biotech companies in Telangana?

Just a few days ago, leaders from India’s pharmaceutical industry expressed their strong interest in setting up new manufacturing units and research and development (R&D) laboratories in the government-proposed Greenfield Pharma clusters. These clusters are part of an initiative to boost pharmaceutical production and innovation in the state. Six leading pharmaceutical companies—MSN Laboratories, Dr. Reddy’s, Laurus Labs, Hetero, Aurobindo and Gland Pharma—have already signed a Memorandum of Understanding (MoU) with the government. These companies have committed to investing Rs 5,260 crore, a significant move that is expected to create 12,500 new jobs in the region. The state government’s key responsibility in this partnership is to provide suitable land equipped with the necessary infrastructure, such as roads, water supply, and power. Work is already underway to ensure these facilities are in place to accommodate the companies and help them begin operations quickly.

Apart from this, other major investments are also contributing to the state’s progress as a pharmaceutical hub. A notable example is Rs 2,000 crore collaboration between KrKA and Laurus Labs to establish biopharmaceutical manufacturing units in Genome Valley; this partnership alone is projected

to create around 2,800 jobs.

Another remarkable project involves Japan's Takeda Life Sciences, which has partnered with Biological E to produce 5 crore doses of dengue vaccines annually. This collaboration further emphasises the region's focus on advanced pharmaceutical production and addressing global healthcare challenges.

These developments highlight Telangana's strategic vision of becoming a global hub for pharmaceutical manufacturing and innovation. The state's focus on building world-class infrastructure and fostering collaborations with leading domestic and international companies ensures a thriving ecosystem for the life sciences industry.

How do you assess the development of the pharmaceutical and biotech sectors in Telangana during the fiscal year 2024-25, including standout achievements and areas needing improvement?

The fiscal year 2024-25 has seen remarkable growth in our pharmaceutical and biotech sectors, with significant achievements such as the establishment of state-of-the-art R&D facilities by companies like Laurus Labs. However, we also recognise areas needing improvement, particularly in enhancing infrastructure to support rapid industry expansion. To improve the skills of the youth, the government is proposing to set up a skill development university in the state. Once this becomes operational, not just pharma, life sciences and other allied industries but also industries offering IT services, manufacturing services and other services can avail skilled and talented workforce at affordable cost. Telangana will witness a new boom in industrial expansion in the coming days, offering jobs and rapid development to the region.

What is the current status of key projects like Hyderabad Pharma City, including any alternative plans if it is being shelved, and how are infrastructure developments along the Outer Ring Road progressing?

Though the Hyderabad Pharma City project is a cornerstone of our efforts to position Telangana as the global hub for pharmaceutical manufacturing and innovation, at present, we are focusing on developing 10 'Pharma Villages' across different districts in and beyond the Outer Ring Road (ORR) regions in Telangana. These Pharma Villages are designed to decentralise pharmaceutical production, taking manufacturing closer to rural areas and underdeveloped regions. This approach will not only improve access to healthcare services locally but will also create opportunities for balanced economic growth across the state.

Combined, these initiatives have the potential to generate up to 5 lakh jobs, providing employment opportunities to a wide range of skilled and semi-skilled workers. More importantly, they will contribute significantly to regional economic development, empowering local communities and boosting the state's economy. By creating the right mix of advanced infrastructure, streamlined policies, and innovation-driven growth, we aim to set a new benchmark for pharmaceutical production in the country and attract global players to Telangana.

How is Telangana fostering public-private partnerships in the pharmaceutical sector, supporting startups through initiatives like T-Hub and We-Hub, and ensuring sustainable growth concerning talent development and environmental governance?

We are strongly promoting public-private partnerships in both the biotech and pharmaceutical sectors to accelerate growth and innovation. These partnerships are essential for creating a supportive environment where industries, the government, and private players can collaborate effectively.

Initiatives like T-Hub and We-Hub are playing a crucial role in supporting startups. T-Hub focuses on technology-driven startups, while We-Hub empowers women entrepreneurs. These platforms provide startups with access to vital resources such as funding, infrastructure, mentorship, and networking opportunities. By offering guidance and support, they help young companies scale up and thrive in competitive markets.

To address the challenge of talent shortages in the biotech and pharma industries, we are also partnering with educational institutions like NIPER, HCU, IIT Hyderabad and others through programmes like TASK (Telangana Academy for Skill and Knowledge).

TASK is a unique initiative that bridges the gap between education and employment by equipping students with industry-relevant skills. This programme ensures that our workforce remains highly skilled, capable, and ready to meet the evolving demands of these fast-growing sectors.

Together, these efforts aim to build a dynamic ecosystem where startups, industries, and skilled talent can work in harmony, driving innovation, creating employment opportunities, and strengthening Telangana's leadership in the biotech and pharmaceutical sectors. BS

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"A 'no-strings-attached' funding model from industry may go a long way in strengthening India's innovation landscape"

Siddhesh Kamat,
Associate Professor, Department of Biology, the Indian Institute of Science Education and Research (IISER), Pune

The Infosys Prize 2024 in Life Sciences has been awarded to Siddhesh Kamat, Associate Professor in the Department of Biology at the Indian Institute of Science Education and Research (IISER), Pune, for his discoveries concerning bioactive lipids and their receptors, and their metabolic and signalling pathways. His research, using advanced methods to understand the function of lipids, a key component of cells, has important implications for understanding the role of these molecules in a range of cellular functions and human diseases. BioSpectrum had a conversation with A/Prof. Kamat about his work, and the translation of his research. ***Edited excerpts:***

Could you please share your plans post this achievement?

My research group is interested in studying the signalling mechanisms regulated by bioactive lipids in mammalian physiology, and how their dysregulation results in different human diseases. Our long-term goal is to identify and characterise as-of-yet uncharacterised lipid signalling pathways in vivo, annotate enzymes and/or cognate receptors that regulate their biology, and provide new insights and therapeutic paradigms for orphan and/or emerging human diseases. Specifically, we have been studying a class of bioactive lipids called lysophosphatidylserines (lyso-PSs), and understanding its physiological roles in the central nervous and immune systems. Over the past few years, we have also figured out how dysregulation in the metabolism of lyso-PS causes diverse human neurodegenerative and autoimmune diseases. Given this knowledge and our experience in this field, over the next few years, we are hoping to take these biological findings to the clinic to treat different diseases associated with dysregulation lyso-PS metabolism.

What is the current scenario of neurodegenerative disorders and metabolic diseases in our country?

The incidence of both neurodegenerative and metabolic diseases is on the rise in the Indian population. While there are enough clinical intervention and therapy options available for different metabolic diseases (e.g. diabetes, dyslipidaemia, cardiovascular diseases), in comparison, a lot fewer are prevalent for neurodegenerative diseases in India (and even worldwide). This stems from an overall poorer mechanistic understanding of how neurodegenerative diseases set in and what can be done to reverse their onset. The brain cells (neurons) unlike other cells in the body have poor regenerative capacity and once damaged, remain perpetually damaged. Also, there are very few clinical diagnostic tests only available for specific neurodegenerative diseases, and most times, expensive and time-consuming genetic analyses are needed to diagnose emerging neurodegenerative diseases. Given all this, finding cures for various neurodegenerative diseases remains a challenge not only in India but also globally.

How can we strengthen innovations in India?

We are actively seeking collaborations with the pharma and biotech industry, and have been successful (albeit only a little). During my limited interactions with industry, I have found that there remains both a communication and knowledge gap, on how scientists from both sides approach a problem. Most academicians are very focused on basic science (which is very important for any field to emerge and develop), while most industrial scientists have application and/or product-orientated outlooks. Hence, sometimes finding a middle ground for fruitful discussion and figuring out how basic science can be translated into an application and/or product can be challenging. Over the past few years, industrial conclaves and industry-funded PhD positions at academic institutes are somewhat bridging this gap, but I feel that more sustained efforts and perhaps a 'no-strings-attached funding model from industry will go a long way in strengthening the innovation landscape in India. The Infosys Science Foundation, via the Infosys Prize, provides significant recognition to cutting-edge areas of research across various disciplines in an Indian context, and most recipients of this prize have the chance to bring forth their research to the general public. BS

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"India needs vaccines that are 'Made for India'"

With a legacy of over 75 years in pioneering advancements with their vaccines within the Indian pharmaceutical landscape, Mumbai-based Novo Medi Sciences (Novo Group) has been instrumental in introducing many first-of-its-kind vaccines in India, playing a vital role in public health and setting standards in healthcare quality and accessibility. The company is all set to launch new vaccines in the country, further strengthening the innovation landscape for vaccine R&D. Forum Bhagat, Managing Director of Novo Medi Sciences (Novo Group) spoke to BioSpectrum about the company's present and future plans. ***Edited excerpts:***

« **Forum Bhagat,** Managing Director, Novo Medi Sciences (Novo Group)

What were the key highlights of the company in 2024? What are the major plans in store for 2025?

In 2024, we continued to expand our mission, considering that we must cater to critical healthcare challenges with innovative solutions. One of our recent key achievements, guided by the principles of our founder and my grandfather, late Ramesh C Bhagat, was the reintroduction of NEXICLOX DS 250mg, a trusted Cloxacillin syrup formulation. This move addresses the dire need for effective treatments against critical infections like skin and soft tissue infections (SSTIs), osteomyelitis, respiratory tract infections (RTIs), and Endocarditis within the paediatric community. Initially launched in 1965, Cloxacillin is the gold-standard penicillin that was discontinued in the Indian pharmaceutical market for over 25 years. The rise of multi-drug resistance (MDR) has rendered many current combination molecules ineffective against susceptible Staphylococcus infections. Consequently, the medical fraternity emphasised the need for 'old is gold' standard molecules like Cloxacillin, which offers a lower likelihood of resistance due to its limited use in recent years.

By reintroducing NEXICLOX DS 250mg, we aim to provide healthcare professionals with a reliable and effective solution for treating critical infections in children, effective against MDR Methicillin-Susceptible Staphylococcus Aureus (MSSA) and has a low resistance risk with a proven safety profile.

We also expanded our product portfolio with the launch of NEXI D3, an advanced Vitamin D3 60,000iu syrup, in first of its kind, easy-to-use pack and CEFZINEX, a next-generation injectable antibiotic combining Ceftazidime and Avibactam. Our vaccine pipeline saw two major candidates for Meningitis and Pneumonia entering Phase 3 clinical trials, underscoring our commitment to tackling critical diseases across all age groups. Additionally, we celebrated eight years of uninterrupted availability of NEXIPOX, our varicella vaccine, which has become a cornerstone of Paediatric immunisation against the chickenpox disease in India. We extended our presence to over 45 countries on the international front, adding new markets in Europe, Africa, Latin America, and North America.

Looking ahead to 2025, we aim to build on these successes by commercialising vaccines for Meningitis and Pneumonia. Furthermore, our research on the Shingles vaccine will progress with the completion of its clinical trial and commercialisation by mid-year, making it India's first Live Shingles vaccine with 1 dose, for 40 years age group and above, providing lifetime immunity. Apart from commercialising these three vaccines, our team has worked hard by advancing to initiate clinical trials for vaccines targeting Typhoid, Cervical cancer, and Hand, Foot, and Mouth Disease (HFMD). HFMD represents a particularly significant milestone, as it will be the first vaccine of its kind in India. We also plan to strengthen our global footprint by launching our own sales and marketing operation in nine African countries and three Latin American nations, alongside obtaining regulatory registrations in 15 additional markets. We are also expected to complete a site audit of our injectables plant by the Philippines FDA.

Are there any investments or collaborations planned in the coming times?

As a country, we have been very highly reliant on multinational corporations to provide vaccines for our country. However, this limits our scope for mass and affordable immunisation for critical diseases like Dengue, Malaria, and Chikungunya, vaccines for these diseases are yet not actively researched in India. With this in mind, we are in discussion with multiple European and Asian biotech research companies for developing niche vaccines along with the new advancement in vaccine development accessible to the Indian population. India needs vaccines that are 'Made for India'.

Are you collaborating with the government to enhance the country's healthcare delivery ecosystem?

In the past decade, India has improved the supply chain, but we still lack the infrastructure to ensure cold chain maintenance for the entire nation. WHO estimates that up to 50 per cent of vaccines are wasted each year globally due to a lack of temperature control and a broken cold chain. We recognise the importance of robust infrastructure to support vaccine efficacy and reduce wastage. Our research and technical team have been working on a device which can solve the biggest issue for vaccines and products that require cold chain maintenance throughout their shelf life. Failure to store and handle vaccines properly can reduce vaccine potency, resulting in inadequate immune responses in patients and poor protection against disease. Patients can lose confidence in vaccines and their providers if they require re-vaccination, as the vaccines they received may have been compromised. This upgradation of India's infrastructure cannot just be the government's responsibility; it must be an initiative taken by the people who have operated in such conditions and with our 77+ years of legacy, we have the experience and the technical knowledge to bridge this underlying gap effectively.

An effective cold chain relies on four main elements: 'well-trained staff', 'reliable storage', 'temperature monitoring equipment', and 'accurate vaccine inventory management.' What if we could do this with just one device that simplifies the entire process while requiring only renewable energy to keep it functional? To make the zero wastage dream a reality, we plan to work with the government to make this device accessible for India, enabling the cold chain products to maintain their potency thereby reducing wastage and proving to be an economic boon for the country.

What are your expectations from the government?

We hope the Health Ministry will keep updating the minimum threshold of India's quality standard to ensure that only quality care is acceptable. Like how the PLI scheme has put India on the path of developing its APIs, we hope similar initiatives are taken to enable investment in making only the highest quality vaccine manufacturing plants which can cater first to the nation and then to the world.

India being a vaccine manufacturing hub, how do you foresee the future of vaccine R&D in India? What are the current challenges facing vaccine R&D in the country?

India has firmly established itself as a global leader in vaccine manufacturing. However, the future of vaccine R&D in the country depends on overcoming key challenges such as limited infrastructure for advanced research, dependency on imported raw materials, and barriers to scaling innovative solutions as also pointed out above.

We as a nation can mass manufacture for the world the basic immunisation vaccines that are much needed for an infant. However, when it comes to tackling complex diseases, we cannot still develop our own. We believe the first step in India becoming an R&D centre for the world is to engage in strategic partnerships with the R&D centres in the developed nations and enable them to provide us with the technology for tackling critical diseases. Once we equip ourselves with the right technology at the right time, there is no stopping us. BS

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"The pharma packaging landscape is evolving rapidly, driven by advancements in technology and changing regulatory landscapes"

Recently elevated from CEO to Chairman and Managing Director (CMD) of Ecobliss India, AVPS Chakravarthi, has been at the forefront of developing eco-friendly packaging technologies, particularly for the pharma, biotechnology and allied industries, worldwide. Chakravarthi, with over two decades of experience, has turned Ecobliss India into a pioneer in the field of blister packaging, catering to industries such as pharmaceuticals, food, and FMCG. Apart from his corporate endeavours, he serves as a global ambassador for the World Packaging Organization (WPO), promoting best practices in packaging to reduce environmental impact. He has also been recognised with numerous awards for his contributions to the industry, including honours for innovation and leadership in sustainable packaging. In an interview with BioSpectrum, Chakravarthi shares his perspective and insights into the new and emerging trends in pharmaceutical packaging and the future ahead. ***Edited excerpts:***

« **AVPS Chakravarthi,** Chairman and Managing Director, Ecobliss India

Could you tell us about your journey from being the CEO and presently to CMD of Ecobliss India?

The transition to CMD is not a significant milestone as it is business as usual. However, personally, it is a moment of pride, reflecting the trust and faith my team and stakeholders have in me. It allows me to focus on strategic growth, mentorship, and steering Ecobliss India toward greater innovation and sustainability. I believe this position enables me to amplify the company's vision and legacy in the pharmaceutical packaging sector.

In this role, I see myself as more of a mentor and guide. It's about empowering my team, encouraging fresh ideas, and ensuring that Ecobliss remains a leader in the pharmaceutical packaging industry. Sustainability and innovation are close to my heart, and this position enables me to champion these values more effectively, aligning the company's goals with global demands for eco-friendly solutions.

What are your immediate priorities and long-term strategies for steering Ecobliss India's growth, especially in the pharmaceutical packaging domain?

My immediate focus is to fortify the core strengths that have defined Ecobliss India's success. This includes enhancing our technical capabilities, ensuring operational excellence, and expanding our reach in the global pharmaceutical packaging market. We are working towards strengthening our existing product lines while innovating new, value-driven packaging solutions that address the evolving needs of the industry.

In the long term, I envision Ecobliss India as a pioneer in integrating cutting-edge technologies into our processes. This involves leveraging advancements such as smart packaging and automation to improve efficiency and ensure product safety. Sustainability is also at the heart of our strategy. By adopting eco-friendly materials and processes, we aim to align with global environmental standards while providing solutions that resonate with customer expectations for greener alternatives.

Another critical aspect of our strategy is capacity building. We are investing in infrastructure expansion and upskilling our workforce to maintain a competitive edge. By fostering strategic partnerships with key stakeholders and collaborators, we can drive innovation and reach new markets.

Ultimately, my goal is to position Ecobliss India as a global leader in pharmaceutical packaging with sustainable, innovative and customer-centric solutions.

What are some of the pharmaceutical packaging solutions offered by Ecobliss and how do they align with the evolving demands of the pharmaceutical industry?

We offer a comprehensive range of

pharmaceutical packaging solutions tailored to meet the industry's stringent requirements. Our portfolio includes child-resistant (CR), senior-friendly, tamper-evident, and anti-counterfeit packaging. These solutions are designed to enhance product safety and ensure compliance with regulatory standards.

Blister packaging is one of our core strengths, and we specialise in creating innovative designs that address both functional and aesthetic needs. Our blister packs cater to diverse pharmaceutical formats, from tablets and capsules to injectable drugs. Each design emphasises ease of use for patients while maintaining the highest standards of safety.

To address the industry's growing focus on product security, we provide tamper-evident and anti-counterfeit features that safeguard the integrity of pharmaceutical products. This is particularly crucial given the rising concerns about counterfeit medicines globally.

Our solutions also align with sustainability goals, as we incorporate eco-friendly materials and manufacturing processes to reduce environmental impact. By adopting a customer-centric approach, we ensure that our packaging solutions are not only compliant but also enhance the overall user experience, reflecting the evolving demands of the pharmaceutical sector.

What are the new emerging trends that you see in pharmaceutical packaging and how is Ecobliss adopting innovative and sustainable practices?

The pharmaceutical packaging landscape is evolving rapidly, driven by advancements in technology, changing regulatory landscapes, and growing consumer awareness. Some key trends include smart packaging, serialisation, and a strong shift toward eco-friendly materials.

We are actively embracing these developments to stay ahead in the industry. For instance, smart packaging solutions, such as RFID-enabled and QR code-integrated designs, are becoming essential. These not only enhance product security and traceability but also improve patient engagement by providing interactive and informative features.

Serialisation is another crucial area we're focusing on, as it helps combat the global issue of counterfeit drugs. Our packaging solutions incorporate robust tracking mechanisms, ensuring compliance with international anti-counterfeit regulations.

Sustainability is at the heart of our strategy. We are transitioning toward the use of biodegradable and recyclable materials, reducing our carbon footprint while meeting customer and regulatory expectations. We are also optimising our manufacturing processes to minimise waste and energy consumption.

By aligning with these emerging trends, Ecobliss is not only delivering innovative packaging solutions but also contributing to a more sustainable and secure pharmaceutical ecosystem. This proactive approach ensures that our offerings are not just relevant today but are future-ready, keeping us at the forefront of the industry.

How committed is Ecobliss to environmentally friendly packaging solutions?

We are actively developing and promoting packaging solutions that use recyclable and biodegradable materials. For instance, our eco-friendly blister packs are designed to minimise plastic usage without compromising functionality. Additionally, we are optimising our processes to reduce waste and carbon emissions, reflecting our commitment to a greener planet.

Has Ecobliss recently introduced any unique packaging solutions that have gained significant attention from clients or the industry?

Recently, we launched a unique child-resistant and senior-friendly packaging solution that has received accolades from both clients and industry experts. This solution not only enhances safety but also improves user convenience, meeting global regulatory standards. Such innovations demonstrate our commitment to addressing real-world challenges with thoughtful design and engineering.

How do you view the current state of the pharmaceutical industry in terms of growth, exports, and challenges? How does Ecobliss plan to contribute to and support the industry's advancement?

The pharmaceutical industry is experiencing robust growth, driven by rising global demand and increased investments in R&D. However, challenges like regulatory compliance and supply chain disruptions persist. Ecobliss is playing a crucial role in this ecosystem by offering packaging solutions that enhance product safety, ensure regulatory adherence, and improve supply chain efficiency. Our focus on innovation and sustainability aligns with the industry's trajectory toward excellence. BS

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India's Transformative Leap in Medtech

India's medtech and diagnostics sector is poised for a transformative journey in 2025. The blend of technology, innovation, and a continued growing commitment to accessibility reshapes the healthcare landscape. While the country is tackling challenges like infrastructural gaps and unequal access, it also draws inspiration from global practices in countries like the US, the UK, and Ireland to create a uniquely Indian healthcare solution. The coming year promises a convergence of emerging trends redefining how healthcare is delivered, experienced, and sustained.

« **Tanaz Buhariwalla,**
Director - South Asia,
IDA Ireland,
Mumbai

AI-driven Diagnostics

The application of artificial intelligence (AI) in healthcare has moved beyond experimentation to become a cornerstone of modern diagnostics. Globally, AI has proven its potential to detect diseases with unparalleled precision. For example, in the US, AI-driven systems have achieved an impressive 95 per cent accuracy in early cancer detection, demonstrating its ability to significantly reduce diagnostic errors.

In India, startups are using AI to address complex health challenges like Niramai uses AI for pain-free breast cancer screening and Qure.ai developed a deep learning algorithm to interpret radiology scans in just a few seconds. Ireland, known for its advanced medtech research, has also been pioneering AI applications in diagnostics. One notable example is Ireland's Health Innovation Hub, which facilitates collaborations between healthcare providers and AI startups to develop cutting-edge diagnostic tools. Drawing from such practices, India could foster partnerships between academia, startups, incubators and healthcare institutions to bridge gaps in diagnostic accessibility, particularly in rural regions.

Enhancing healthcare accessibility with POCT

Point-of-care testing (POCT) could make healthcare accessible across India, including rural India. According to Statista reports it is transforming the way diagnostics are conducted by enabling real-time, accurate testing at or near the patient's location. Innovations in biosensing, microfluidics, and paper-based diagnostics are enhancing affordability and diagnostic precision, while improving healthcare delivery, especially in rural settings. Indian companies like Agappe, Cipla Diagnostics, Mylab, and TransAsia Biomedicals have products in use in the market, and they continue to innovate. We see the widespread adoption of POCT is helping address infectious diseases like tuberculosis and dengue, and this is just the beginning.

As per Grand View Research Data, the Indian diagnostics market was valued at about $13 billion in 2023 and is expected to grow twice its current size by 2028, while the global market size of this industry was valued at $44.24 billion in 2023, and it is projected to grow at a CAGR of 6.1 per cent from 2024 to 2030.

We see the impact of the deployment of POCT in developed countries too. For example, in the UK, the National Health Service (NHS) has effectively used POCT to diagnose conditions such as sepsis quickly, often saving lives in critical situations.

Ireland's medtech industry, which accounts for 8 per cent of its GDP, has excelled in producing compact, portable POCT devices designed for global markets. Companies like Randox and Abbott Diagnostics Ireland have contributed significantly to revolutionising how care is delivered in emergency and rural settings.

Indispensable Wearables

Wearable devices continue to evolve from the time they were used as fitness gadgets. Wearables are essential tools for monitoring and managing health. Today's sophisticated devices track metrics like heart rate, glucose levels, and blood pressure and are becoming indispensable for managing chronic conditions and promoting preventive care. Increasing use of wearable devices offers an incredible opportunity to improve individual and population-level health outcomes. Wearable technology when properly integrated into healthcare systems where data is interoperable and shared, rather than siloed, can play a key role in understanding the key factors which affect health at a population level and can deliver actionable insights to improve health and well-being.

Ireland has a national health strategy that is focused on delivering the right care, in the right place, at the right time. Data, analytics, AI and wearable technology are supporting the realisation of this strategy, although there are several challenges to overcome.

India has also witnessed the rise of affordable wearables developed by startups like GOQii and BeatO. These devices are integrated into digital health ecosystems, allowing patients to take greater control of their health while enabling physicians to provide more informed, timely care.

New era of Precision Medicine

The study of genomics is shaping the future of healthcare by enabling treatments tailored to an individual's genetic makeup. Precision medicine, driven by genomic insights, has shown promise in effectively treating complex diseases while minimising side effects.

The Genomic Medicine Ireland initiative is driving forward advancements in personalised medicine in Ireland. This initiative aims to collect and analyse genetic data to improve disease diagnosis and treatment on a global scale. In India, genomic research is beginning to address diseases such as cancer and rare genetic disorders. With similar initiatives tailored to its population diversity, India could not only expand its genomic capabilities but also contribute to global research. We see the emergence of Indian companies operating in this field, including Yoda Diagnostics. The global precision medicine market is expected to grow from $80 billion in 2022 to $168 billion by 2028, indicating a 13.3 per cent CAGR. In India, the adoption of precision medicine is still in its nascent stages although it is gaining momentum and significant growth is predicted in the coming years. This will be spurred by increasing private sector investments in R&D and the rising incidence of chronic diseases.

Sustainability through Medtech Innovation

The medtech industry is aligning its practices with global sustainability goals. Ireland, a country committed to sustainable development, has made significant strides in adopting green manufacturing practices within its medtech sector. Companies like Medtronic and Stryker are setting benchmarks in reducing carbon footprints and incorporating renewable energy into their operations.

In India, while sustainability in healthcare is still at a nascent stage, medtech companies are beginning to explore environmentally friendly solutions. While India's medtech and diagnostics sector is growing rapidly, there is much to learn from global leaders. Ireland's ability to foster collaborations between government, academia, and industry has been instrumental in its rise as a medtech hub. Similarly, the US invests 3.1 per cent of its GDP in R&D, fostering a culture of continuous innovation, while the UK's focus on training and upskilling healthcare professionals ensures the seamless adoption of new technologies.

India's Opportunities and Inspirations

For India, increasing investment in R&D, fostering public-private partnerships, and developing a skilled workforce will be critical in sustaining growth and innovation. Adopting global best practices while tailoring them to India's unique healthcare challenges could accelerate progress across the medtech ecosystem, which is on the cusp of significant transformation. With a unique blend of local innovation and global inspiration, the country is well-positioned to accelerate redefining healthcare delivery in 2025. By focusing on technology, accessibility, and sustainability, India can address its healthcare challenges while setting a global benchmark for emerging economies.

Collaboration among stakeholders, increased investment in innovation, and a commitment to equitable healthcare will be essential. As India picks up best practices from countries that have seen success in this area, it has the potential to not only transform its medtech landscape but also ensure a healthier, more sustainable future for its 1.4 billion citizens. BS

Key Skills & Salary Trends in Healthcare & Pharma for 2025

India's healthcare and pharmaceutical sectors have witnessed tremendous growth in the last decade, with cutting-edge technology being widely integrated into operations. Currently, the healthcare and pharma industries are valued at a colossal $372 billion and $50 billion, respectively. As one of the largest employers, employing around 7.5 million people, the healthcare sector is undeniably the country's economic backbone. Amid this competitive landscape, it's imperative for existing professionals and those aspiring to build a career in the healthcare/pharma industry to upskill themselves regularly. Let's delve into the skills and salary trends over the past five years in the healthcare and pharma sectors.

« **Munira Loliwala,**
VP,
Strategy and Growth,
TeamLease Digital

Evolving Skillsets

The healthcare and pharmaceutical industries are undergoing profound transformations, led by the adoption of artificial intelligence (AI), telemedicine, automation, and data analytics. These innovations are reshaping the workforce, creating demand for roles like data scientists, AI specialists, and platform engineers. A recent report forecasts that these technological shifts will generate 2.7 to 3.5 million new jobs by 2027, even as they replace about 23 per cent of existing positions.

The integration of advanced technologies requires professionals with robust digital literacy and problem-solving abilities. For instance, telemedicine platforms depend on developers and cybersecurity experts, while virtual health assistants demand proficiency in AI and natural language processing. Alongside technical skills, healthcare professionals must also refine soft skills like patient communication and cultural competence to navigate an increasingly globalised ecosystem.

Salary Trends

When it comes to salaries, the healthcare and pharma industries have shown steady growth in salaries over the past five years. Between 2020 and 2024, salaries for fresher roles in these sectors increased from Rs 1.7 lakh per annum to Rs 2.2 lakh per annum, while lateral roles saw stable compensation levels around Rs 9.9 lakh per annum. Technology-specific roles such as AI engineers, machine learning experts, and data scientists have witnessed higher growth in salaries, with entry-level positions starting at Rs 9.6 to 10.2 lakh per annum and senior positions commanding over Rs 24 lakh per annum.

However, despite a general salary increase of 9–10 per cent annually, disparities remain. Factors like company size, location, and specialisation play crucial roles in determining compensation. Urban hubs like Bengaluru and Hyderabad offer higher salaries, reflecting their status as tech-driven healthcare hubs.

Challenges in Talent Acquisition

While technological integration is advancing at an unprecedented pace, a notable skill gap poses significant challenges for organisations. Many professionals lack hands-on experience with advanced medical technologies, and communication gaps hinder seamless interactions in global settings. According to recent studies, there is an envisioned shortage of over 2.36 lakh medical technologists and nearly two lakh surgical professionals.

Bridging this gap means focused efforts from all sides. Healthcare institutions must collaborate with educational institutions to align curricula with industry needs. Furthermore, reskilling programmes targeting mid-career professionals can help fill critical gaps, ensuring a steady pipeline of talent capable of driving innovation.

Upskilling

Healthcare and pharma organisations are adopting multifaceted strategies to upskill their workforce. AI-driven learning platforms are personalising training modules, enabling

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professionals to acquire cutting-edge skills in data analytics and machine learning. Partnerships with EdTech companies like Coursera are expanding access to specialised training in areas such as robotic process automation and IoT.

Today, certification programmes addressing regulatory compliance are becoming standard, equipping employees to navigate complex data privacy frameworks. Moreover, companies are investing in employee-centric initiatives like flexible work arrangements and career growth pathways to attract top talent.

From Roadblocks to Opportunities

Technology adoption brings both challenges and opportunities. One of the primary concerns is data security. The rise of digital health records has increased vulnerability to breaches, necessitating robust cybersecurity frameworks. Meanwhile, regulatory complexities, especially in cross-border operations, demand agility and adaptability.

However, these roadblocks create ample opportunities. Enhanced data analytics capabilities empower healthcare providers to offer personalised care, while AI-driven diagnostics improve operational efficiency. Emerging technologies like quantum computing and 5G promise to revolutionise patient care, creating an interconnected Internet of Medical Things (IoMT) ecosystem.

A Tech-driven Future

Looking ahead, the demand for advanced technical skills is set to accelerate. Expertise in AI, genomics, telemedicine, and cybersecurity will be indispensable as the industry moves toward a digitally integrated model. With this shift, salaries for niche roles are projected to increase significantly, particularly in high-demand areas like automation and personalised medicine.

As the healthcare and pharma industries continue to adopt cutting-edge technology, candidates with an interdisciplinary skill set, combining technical acumen with empathy and strategic thinking, will thrive. The emphasis will not only be on individual expertise but also collaborative problem-solving within dynamic, tech-driven teams.

Healthcare and pharma are at the cusp of a tech revolution, presenting unparalleled opportunities and challenges. Addressing the skill gap, driving innovation, and creating inclusive workplaces are critical for sustaining growth. By prioritising upskilling, embracing digital transformation, and leveraging data-driven insights, these sectors are poised to redefine healthcare delivery and pave the way for a healthier, more connected future. Simply put, they are shaping the future of health and wellness, where technology and humanity meet to redefine the very essence of care.

The Outlook

The digital health market is expected to expand from $12.20 billion in 2023 to $25.64 billion by 2027. Medical devices and digital applications collectively contribute revenue of up to $4.9 and $5.2 billion to the overall digital health market. The setup of more medical colleges as planned in the Budget 2024-25 will boost the rise of ambitious youth in healthcare, it will also help transform the existing women workforce in healthcare as compared to any sector towards Digital health jobs and health tech segments.

The aim to increase the Tech Talent from the current 1 to 2 per cent in this sector is crucial. Heavy technology investments, better investments in devices and R&D schemes are awaited from the government to advance telemedicine, virtual assistants and data analytics that are expected to create 2.7-3.5 million new technology jobs with demand for talent like data scientists and AI specialists. Budget 2024-25 was also expected to impact the overall healthcare ecosystem that not only is core to delivery but disrupted by other facets such as hygiene, sanitation, water, environment & infrastructure gap, blended funding and financing models are needed to attack the rising chronic diseases, coverage for all income groups and accessibility to all. BS

DigiNerve unveils orthopaedics MS Course to connect medical education with surgical precision

DigiNerve, an EdTech platform by Jaypee Brothers Medical Publishers, is revolutionising orthopaedic medical education with the strategic launch of its comprehensive Orthopaedics MS course. The course has been developed under the guidance of leading orthopaedic surgeons and medical experts representing a transformative approach to medical education. By integrating cutting-edge digital learning techniques with hands-on practical insights, DigiNerve is set to redefine how medical professionals acquire advanced orthopaedic skills and

knowledge. The programme offers flexibility, with course durations ranging from 6 to 36 months and competitively structured pricing from Rs 14,999 to Rs 38,999. Specifically tailored for medical residents, interns, and professionals seeking to enhance their orthopaedic expertise, the course targets those aspiring to achieve remarkable standards in surgical precision and medical knowledge. DigiNerve's unique curriculum emphasises expert-led learning, featuring insights from eminent faculty and surgeons with extensive hands-on experience. The programme goes beyond theoretical knowledge, focusing on real-world applications that prepare students for the challenges of modern orthopaedic practice.

SOA, MR Vishwavidyalaya sign MoU to further academic initiatives and research

Siksha 'O' Anusandhan (SOA) Deemed-to-be University has signed a Memorandum of Understanding (MoU) with the Malla Reddy Vishwavidyapeeth, Hyderabad, to undertake collaborative programmes in both academic initiatives and research. Malla Reddy Vishwavidyapeeth is a Deemed-to-be University which runs seven institutes imparting education in medical sciences, dental sciences, nursing, pharmaceutical sciences and engineering with three of the institutes meant only for women in Telangana. With regards to academic initiatives, both the universities shall collaboratively design the course and curriculum to ensure their relevance and efficacy in addressing current and emerging industry trends.

Max Healthcare Foundation launches second edition of flagship medical scholarship programme

Max Healthcare Foundation has announced the launch of the second edition of its flagship Max Medical Scholarship Programme, designed to empower meritorious students from economically weaker sections pursuing medical education. The scholarship will fully fund the medical education of 100 new students every year who have qualified for the National Eligibility cum Entrance Test (NEET examination) and gained admission to the Bachelor of Medicine and Bachelor of Surgery (MBBS) programme in government medical colleges in Delhi, Mumbai, Lucknow, Chandigarh, Nagpur and Dehradun for the academic year 2024-25. In addition to opening new opportunities for fresh applicants, Max Medical Scholarship programme will also continue to fund the education of students who were enrolled last year, now in the second year of academic journey, ensuring continuous support. The Max Medical Scholarship Programme is part of Max Healthcare Foundation's corporate social responsibility programme that aims to encourage and support the aspirations of next-generation medical professionals.

Innovation serves as the backbone for Agilent: Celebrating 25 years in India

« **Bharat Bhardwaj,** Vice President and General Manager – APAC

« **Samir Vyas,** Associate Vice President, Sales – APAC

2024 marks Agilent's 25th anniversary in India. To celebrate this momentous occasion, Agilent announced the launch of two new products for the Indian market- Infinity III LC Series and New ProteoAnalyzer System, at the 17th edition of CPHI & PMEC India, organised by Informa Markets, from 26 to 28 November at the India Expo Centre, Greater Noida, Delhi-NCR. Bharat Bhardwaj, Vice President and General Manager – APAC and Samir Vyas, Associate Vice President, Sales – APAC, shared more details about these new products at the event.

What are the unique features of the new products (Agilent Infinity III LC Series and New ProteoAnalyzer System) being launched in India?

Bharat Bhardwaj: This is not just for the Indian or Asian market, this is a global launch. At CPHI, we had a live product display where our customers could observe, and see the functionality of it, ask questions and get themselves comfortable with the new product. There are loads of features which come along with the products, but there are a lot of inputs from the customers which are embedded as we have built the products, whether it is in the form of efficiency, or in the form of productivities, with sustainability or even automation and connectivity.

With the introduction of the new LC systems, Agilent is revolutionising the LC user experience. These systems significantly enhance task automation, connectivity, predictive feedback, and error reduction. The innovative built-in sample tracking, utilising barcoding and camera technologies ensures the elimination of sample mix-ups, providing users with greater accuracy and peace of mind.

On the other hand, the Agilent ProteoAnalyzer System brings added efficiency, versatility, and reliability, particularly in protein QC workflows. Automating the separation, data processing, and simplifying sample preparation steps streamlines the analysis workflow, which improves efficiency and reduces training and related labour costs. The system also can analyse a wide range of sample types, from crude lysates to purified fractions. It can analyse different sizes and types of proteins in a single run and consistently deliver accurate results, reducing the need for time-consuming and costly reanalysis.

How do you plan to market and strengthen the presence of these new products in the Indian market? Are these solutions affordable? And how do you ensure that the users get the maximum benefit out of it?

Samir Vyas: Agilent has a long legacy when it comes to chromatography, all the way from the HPs building the very robust GC and HPLC. Over a period of years, we have increased our reach into the different markets. I think that legacy has helped us to understand the

aspiration of our customers when it comes to the lab or the lab of the future.

And that has really helped us to build that as a way when we design innovations. When it comes to the HPLC, we have a very vast installation base in India. And that has really helped us to understand the need of the different markets and the regulations.

We have a very skilled technical team working in building the right workflow and the solutions, which are more aligned with the Indian regulations. And to us, I think that is the way for us to go. So, when we talk about the different segments, we have built the expertise in Agilent, which understands the challenges and the future aspirations of each market.

I believe the cost is not just in saving the capex, but the cost is also how productive the lab becomes when they use the innovations. And when we speak to our customers, one of the bottlenecks or pain points for our customer is how early the users get comfortable with the new product and deliver the confident results. With the Agilent Infinity lab assist features in the new HPLC, it will pretty much help the new user to understand the critical part of the maintenance in a simplified way.

Are there any specific challenges that you are trying to address by launching these new products?

Bharat Bharadwaj: Infinity III is particularly built on our core platform of Infinity II and Infinity I, which has been there for almost two decades. So, we have a really good partnership and market leadership in these two products. But as a company, we are constantly looking at new feedback. The new lab users that we have, they want to have a smarter feature, they want to have easy access, have robustness as before, and also want to have better connectivity and automation. And these have been the interests of our users as well as the lab challenges.

How much growth do you expect out of these products or the new products that might be in the pipeline? What's your future plan in that regard?

Samir Vyas: When we talk about the ProteoAnalyzer or Infinity III, we have a very vast reach in terms of the market. These products are the backbone of any lab when it comes to the biopharma, pharma lab, including the food and academia. So, when you have such a vast mix of the market, it brings significant opportunities. When it comes to HPLC, it is the largest portfolio in terms of the business volume. And in recent times, we have been gaining market share, making a clear value proposition for our customers. I am very confident about the growth opportunity with this innovation, and it is benefiting our customers to be more successful in their endeavours.

Would you be collaborating with the academics as well or promoting the industry-academia collaboration so that more users can be aware of your product?

Bharat Bhardwaj: We as a company have a quite active collaboration network with our partners across the world, including in India. We have some of the premier institutes of India as our collaborators. They will get to see these new products. Also, our existing customers of the LC series will now have access to Infinity III. They will get first-hand experience as the equipment begins to be installed in the lab. I believe that the partnership works really well for us. And perhaps this is the way we capture the voice of our customers as well.

With Agilent playing a key role in supporting biotech research, how do you plan to align your future goals with the new Biomanufacturing policy, recently approved by the government?

Samir Vyas: The policy is bringing a lot of confidence across the industry, as it focuses on economy, environment and employment and these are very important verticals to build the ecosystem. I am pleased to share that Agilent has a pretty much similar approach when it comes to biotechnology. When it comes to the economy, I think India is one of the fastest growing-end markets for Agilent. And we have a very focused approach to work with our customers and support them in building the right infrastructure and make them successful in this very fast-moving end market. When it comes to the environment, both the new products which we have launched are having a strength of making sure we just don't bring innovation, but we bring more commitment for environmental sustainability. For instance, Infinity III HPLC is certified by My Green Lab. And last but not the least is employment. Recently, Agilent has hired a big-size from campus recruitment for our sales and service organizations. That is another commitment in terms of creating new jobs and bringing the value chain up for the biotechnology sector. ■

Heartnet appoints Indranil Das as Senior Advisor - Technology

Bengaluru-based Heartnet India, an IoT-based solution dedicated to enhancing cardiac healthcare delivery, has announced the appointment of Indranil Das as Senior Advisor - Technology. In this role, Das will play a pivotal role in guiding the company's technological advancements and strategic initiatives. With over 34 years of experience in the IT industry, Das brings a wealth of knowledge in cloud, mainframe, and data centre operations. Previously, he held leadership positions at DXC, IBM, and Maersk, where he led large teams across the EU, APAC, the Americas, and Canada, delivering innovative solutions for Fortune 500 clients. Heartnet aims to strategically reach 10,000 care points within the next 24 months. With the appointment of Indranil Das as Senior Advisor- Technology, Heartnet is poised to enhance the way cardiac care is delivered across India by bridging the accessibility gap.

Infinx names Ninad Chavda as new Chief Financial Officer

Infinx, a trusted provider of artificial intelligence (AI)-powered solutions for patient access and revenue cycle management, has announced the appointment of Ninad Chavda as Chief Financial Officer (CFO). With over 25 years of expertise in financial management, mergers and acquisitions (M&A), and strategic planning across the manufacturing and technology sectors, Chavda will spearhead Infinx's financial strategy across its offices in India, the US, and Manila. Chavda holds a prestigious qualification from the Institute of Chartered Accountants of India and has built a strong track record in financial planning, analysis, and management reporting throughout his career. Prior to joining Infinx, he served as CFO for the Asia Pacific region at Fiserv, where he successfully supported key financial strategies and contributed meaningfully to significant M&A initiatives. In his new role at Infinx, Chavda will provide financial leadership, collaborating with finance and accounts teams across multiple regions. His global expertise, spanning APAC, the US, UK, and India, will play a pivotal role in shaping the company's financial roadmap as it continues its rapid expansion within the healthcare revenue cycle management (RCM) space.

Amgen India ropes in Naveen Gullapalli as MD

Amgen has announced the appointment of Naveen Gullapalli as Managing Director of Amgen India. Gullapalli will lead the Amgen India Technology and Innovation site in Hyderabad leveraging his extensive experience leading global operations and adjoining functions across the pharmaceutical, finance and technology industries. Gullapalli joins Amgen from Novartis where he led the development of their Global Centre in Hyderabad and their network of six centres across the world where he was instrumental in driving strategic growth and innovation for the enterprise. His deep experience in developing specialised skills and enabling business transformation aligns closely with Amgen's vision for its Hyderabad site as a global technology and innovation hub. Amgen India is key to furthering the company's global vision of unlocking the convergence of biotech and tech to accelerate innovation and help meet the needs of a globally aging population. Gullapalli's wealth of experience and strategic leadership will drive the success of this new site.

NATHEALTH Foundation inducts Dr Indu Bhushan & Neeraj Jain to the board

NATHEALTH Foundation has announced the induction of two distinguished leaders, Dr Indu Bhushan and Neeraj Jain, to its Board. Their unparalleled expertise and commitment to advancing healthcare will significantly strengthen the Foundation's mission to foster a robust and inclusive healthcare ecosystem in India. Dr Indu Bhushan, Former IAS officer, Senior Associate at Bloomberg School of Public Health and Johns Hopkins University and Founding CEO of the National Health Authority, has a distinguished career spanning over four decades. As the CEO of Ayushman Bharat, he spearheaded the implementation of the world's largest healthcare coverage scheme, ensuring its successful nationwide rollout. His visionary leadership and experience in leading transformative healthcare initiatives have left a profound impact on millions of lives, making him a trailblazer in enhancing healthcare access. Neeraj Jain, currently serving as Country Director - India and Director - Growth Operations for AMEE (Asia, Middle East & Europe) at PATH, has over 30 years of experience across the social impact and global health sector. He has overseen PATH's strategic, operational, and growth activities across the region and represents PATH to governments, policymakers, and the global health community in South Asia. Jain is a strong advocate for leveraging technology, partnerships, and Global South collaboration to promote health access and equity. He has been instrumental in driving public health innovations and forging strategic collaborations across the public health value chain.

Dr. Indu Bhushan

Neeraj Jain

Dr Alok Khullar steps in as Group CEO of RJ Corp Healthcare

RJ Corp Healthcare, a leading name in the healthcare sector through its renowned entities Cocoon Hospital and Cryoviva Stem Cell Bank, has announced the appointment of Dr Alok Khullar as Group Chief Executive Officer (CEO). With over two decades of experience spanning hospitals, health insurance, medical assistance, and health risk consulting, Dr Khullar brings a wealth of expertise to the role. Dr Khullar began his career as an Emergency Physician before transitioning into healthcare management in 2008. Throughout his career, he has held key leadership positions at prestigious organisations, including Gleneagles Hospitals, Kauvery Hospitals, HCL Healthcare, Max Bupa Health Insurance, and International SOS. A distinguished alumnus of Dr Sampurnanand Medical College in Jodhpur, Dr Khullar also holds a Post Graduate Diploma in Management from Narsee Monjee, Mumbai, and a fellowship in Emergency Medicine from Duke Medical School, Singapore.

Entod Pharmaceuticals on-boards Dr Anish Desai as Scientific & Research adviser

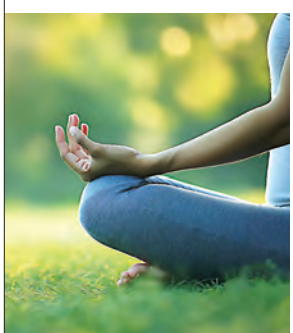
Mumbai-based Entod Pharmaceuticals has appointed Dr Anish Desai as its Scientific and Research Adviser. Dr Desai, a Clinical Pharmacologist with expertise in pharmaceuticals and nutraceuticals, brings over 30 years of distinguished experience spanning academia, research, and the healthcare industry. Known for his strategic vision, innovative problem-solving skills, and entrepreneurial mindset, Dr Desai has been instrumental in driving sustainable growth and revenue generation for numerous organisations. In his new role, Dr Desai will guide Entod's research strategies, focussing on integrating progressive methodologies to develop novel therapies in ophthalmology, ENT, and dermatology.

JNCASR develops plasmonic devices for wearable sensors and medical imaging tools

In a significant advancement in nano-photonics, scientists at the Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), Bengaluru, an autonomous institute under the Department of Science and Technology (DST), have introduced a new approach to achieve flexible near-infrared plasmonic devices using affordable scandium nitride (ScN) films. This could revolutionise the design of future optoelectronic devices, flexible sensors, and medical imaging tools that rely on NIR light, by introducing scalable and cost-effective plasmonic materials. Plasmonics is a field that leverages the interaction between light and free electrons in metals to create extremely confined electromagnetic fields. Traditionally, plasmonic materials have been rigid and possess limited design possibilities. Most of them, like gold or silver, tend to be costly and possess limited versatility. The team used a process by which single-crystal layers are deposited onto a substrate, technically called epitaxial growth. The technique they used stacks layers of materials with weak interlayer bonding to enable new device architecture (van der Waals heteroepitaxy).

RSSDI study lays focus on Yoga and Diabetes Prevention

Dr Jitendra Singh, Union Minister of State (Independent Charge) for Science and Technology, recently released the landmark study by Research Society for Study of Diabetes in India (RSSDI) on 'Yoga and Diabetes Prevention'. The study was conducted by a group of eminent RSSDI members including Prof. S.V. Madhu, Head of Centre for Diabetes, Endocrinology and Metabolism, University College of Medical Sciences, New Delhi; Prof. H.B. Chandalia, Former Head at Grant Medical College, Mumbai and presently Head Diabetes Endocrine Nutrition Management and Research Centre, Mumbai; Dr Arvind Gupta, Manilek Research Centre, Jaipur and others. Conducted over three years across five centres in India and involving nearly 1,000 prediabetic individuals, the study highlights that a 40-minute daily Yoga routine, incorporating select asanas and pranayama, along with standard lifestyle interventions, can reduce the risk of developing diabetes by approximately 40 per cent. These results surpass the outcomes of existing diabetes prevention strategies in the country.



Gene mutation likely cause for developing autism in early childhood: RGCB study

Autism, a developmental disorder that causes functional abnormalities in brain development, is caused by a combination of environmental and genetic factors with its symptoms manifesting in childhood as early as the age of two years. Complexities of ASD (Autism Spectrum Disorder) include single gene mutations in early development genes. A recent study by BRIC-Rajiv Gandhi Centre for Biotechnology (RGCB) linked a novel mutation in Tlx3 gene with abnormal development of the cerebellum (a major region of the hind brain that controls balance, motor movement, and other complex functions) and autism. The study, conducted by Dr Jackson James and his team from RGCB, has been published in the journal iScience. Deleting Tlx3 gene from the cerebellum of a transgenic mouse (a mouse with its DNA altered through genetic engineering techniques) embryo potentially affects coordination of cerebellum function. When these mice embryos were allowed to grow until adulthood, they developed hallmarks of autistic behaviour, including abnormalities in social skills, repetitive behaviour, and motor/movement function.

IIIT-Delhi unveils AI platform for discovering molecules that promote healthy ageing

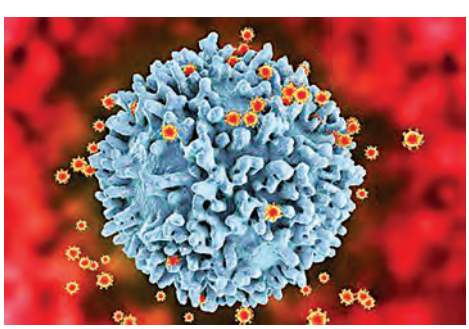
A team of researchers from Indraprastha Institute of Information Technology Delhi (IIIT-Delhi) has developed AgeXtend, a groundbreaking artificial intelligence (AI)-based platform that is set to transform the search for molecules promoting healthy ageing. Published in the journal Nature Aging, this research represents a significant step forward in understanding and addressing the biological mechanisms of ageing. AgeXtend is a multimodal geroprotector prediction platform that leverages bioactivity data from known geroprotectors to identify new molecules with the potential to slow ageing. The platform encompasses advanced AI modules capable of predicting geroprotective potential, evaluating toxicity, and identifying target proteins and mechanisms of action. This comprehensive approach ensures both accuracy and safety in the discovery process.

IISc sheds fresh light on pathology of ovarian cancer

A new study from the Indian Institute of Science (IISc), Bengaluru shows how inherent variations in a cancer cell and its interactions with its surroundings mould its migration. The findings, published in the Biophysical Journal, reveal that cancer cells seem to adapt their migratory pattern depending on the physical and biochemical characteristics of their surroundings, called the microenvironment. The researchers studied two types of ovarian cancer cells – OVCAR-3, which has a well-structured polygonal shape, and SK-OV-3, which has a naturally elongated spindle shape. Both of these cells metastasise and invade tissues. By placing these cells on soft and stiff surfaces that mimic healthy and diseased tissues, the researchers observed how each type adapted its movement on different surfaces. According to the researchers, this study sheds fresh light on the pathology of ovarian cancer, a disease that is characterised by rapid metastasis and high morbidity. The researchers aim to extend the study to decipher the collective dynamics of cancer cells, especially in more complex 3D environments.

New technology for unambiguous detection of HIV genome using tailored fluorogenic tests

A team of scientists at Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), has developed a novel diagnostic technology known as the GQ Topology-Targeted Reliable Conformational Polymorphism (GQ-RCP) platform. Initially designed for the fluorometric detection of pathogens like SARS-CoV-2, this versatile platform has now been successfully adapted for diagnosing HIV, reiterating its modular versatility. Unlike most other diagnostic assays developed in recent years, which rely on pre-existing principles for detection, this research introduces an entirely novel diagnostic platform based on specific and unusual nucleic acid–small molecule interactions identified during the course of the study. This molecular detection platform can be integrated into existing nucleic acids based diagnostic platforms with increased reliability stemming from sequence specific recognition. It could alleviate the challenge in existing amplification-based techniques, in discrimination of false-positive results arising from non-specific amplification and help achieve unambiguous detection of the target GQ (noncanonical nucleic acid conformation).



Parse Biosciences announces expansion of Evercode BCR product line

Parse Biosciences, a leader in scalable single cell sequencing solutions, has announced the expansion of its Evercode BCR product line to enable applications in mice. The new kits enable researchers to profile the mouse BCR repertoire alongside whole transcriptome data for millions of cells in a single experiment, offering unmatched scale and efficiency for antibody discovery. The Evercode BCR platform is designed to streamline workflows for antibody research, allowing scientists to identify individual antibody-producing cells and their clonally-related groups that generate specific antibodies of interest. Unique features, such as sample fixation capabilities, allow researchers to preserve cells and samples from mice for up to six months, thereby reducing the need to harvest additional mice and maximising the yield per discovery campaign. Further, the technology eliminates the requirement for costly equipment, making advanced single cell analysis accessible with standard laboratory tools.

Thermo Fisher unveils CTS Detachable Dynabeads to enhance cell therapy development

Thermo Fisher Scientific Inc. has unveiled the Gibco CTS Detachable Dynabeads CD4 and CTS Detachable Dynabeads CD8 (CTS Detachable Dynabeads). These latest products expand on Thermo Fisher's CTS Detachable Dynabeads platform, which represents a new generation of cell therapy isolation and/or activation products that prioritise cell quality while also creating greater workflow control. Ultimately, these products can help customers maximise the potential of their therapies to save more lives. Studies have shown that a balance of CD4+ and CD8+ Chimeric Antigen Receptor (CARs) seem most effective for CAR-T cell therapy. The specific binding properties of the new CTS Detachable Dynabeads CD4 and CTS Detachable Dynabeads CD8 products enable efficient isolation of CD4+ and CD8+ T cells, minimise cell stress and ensure high purity and yield of the desired cell populations. When used together with the CTS Detachable Dynabeads Release Buffer, these products empower users with a first-of-its-kind cGMP cell selection technology that has an active release mechanism for process development, clinical trial and commercial manufacturing uses. As a result, users can achieve more process flexibility and gain greater control over cell purity, yield and phenotype, which can help cell therapy developers bring life-changing treatments to patients faster, especially for those diagnosed with complex diseases such as blood cancers.

Qiagen launches AI-extension of Ingenuity Pathway Analysis for automatic interpretation of biological data

Qiagen has announced the launch of Ingenuity Pathway Analysis (IPA) Interpret, a new feature designed to simplify and accelerate the interpretation of complex biological data. Leveraging AI technology, IPA Interpret helps distill complex differential expression analyses into actionable insights, helping researchers understand which genes are involved in a disease, a biological process or a response to a drug or environmental condition. IPA, which forms the foundation of IPA Interpret, has over 50,000 citations and a high-quality, manually curated knowledge base. This widely recognised platform structures and integrates causal biomedical relationships between genes, diseases, functions, targets, drugs, chemicals, and other objects. With IPA's curated knowledge base, scientists can confidently predict and validate novel target-disease and drug-disease relationships.

Agilent introduces innovative Mito-rOCR assay kit for mitochondrial research

Agilent Technologies Inc. has announced the new Mito-rOCR Assay Kit. This easy and streamlined end-to-end solution makes sophisticated analysis of mitochondrial function available to researchers of all skill levels. With this cost-effective and versatile kit, researchers can easily incorporate functional assessment of relative mitochondrial respiration into their cell physiology and disease pathology studies. Mitochondria are central to energy production processes that drive cellular activity, and mitochondrial dysfunction is linked to numerous diseases and conditions.

The Mito-rOCR assay enables more researchers to explore this crucial aspect of biology with accuracy and ease. The assay can be used with various compatible fluorescent plate readers and multimode imagers that meet its requirements for sensitivity, detection capabilities, and environmental control. The BioTek Cytation series of fluorescence plate readers and multimode imagers are ideal for the Mito-rOCR assay.

Sartorius Stedim Biotech opens new centre for bioprocess innovation in US

Sartorius Stedim Biotech, a leading partner of the biopharmaceutical industry, has opened its new centre for Bioprocess Innovation in Marlborough, Massachusetts in the US. This state-of-the-art facility is designed to foster collaboration, co-development and learning on site with customers and other external innovation partners, applying Sartorius' latest technologies in real-life bioprocess workflows. The 63,000-square-foot facility houses research and service laboratories, as well as facilities for customer demos and training. Dedicated expert teams will offer process development, optimisation and validation services. Currently hosting a team of 50 scientists and product developers, the new hub will have the capacity to accommodate more than 120 internal and external bioprocessing experts. In 2025, Sartorius Stedim Biotech will add two multi-modality GMP suites, operating on Sartorius workflows and equipment. The suites will allow customers to extend their process development projects with Sartorius into the early stages of clinical production.

Scale Biosciences & Revvity's BioLegend offer solution for high parameter protein profiling of single cells

Scale Biosciences, a leader in innovative and scalable single cell analysis solutions, and Revvity's BioLegend business, a leading provider of world-class biological reagents and tools, have announced the availability of a new, first-of-its-kind TotalSeq Phenocyte single-cell protein profiling solution that supports customers by more easily identifying and characterising rare cell subtypes, which ultimately powers immunology and oncology research. The solution is enabled by the proprietary combination of Scale Biosciences' Quantum Barcoding technology platform and BioLegend's TotalSeq antibody conjugates. While technologies like mass cytometry and high-parameter flow cytometry enable protein analysis at the single cell level, these approaches require complex panel optimisation and sophisticated instrumentation that limit their accessibility and scalability across multiple samples. The new offering builds upon BioLegend's well validated TotalSeq-A antibody panels and Scale Bio's Quantum Barcoding technology workflow.

Weighing Benefits of Obesity Quickfix Drugs

India is facing an unprecedented obesity crisis that is threatening the nation's public health landscape. It ranks among the top three countries for obesity, with a staggering 70 per cent of its population being overweight. As a result, the attention is now inching towards the growing use of weight loss medication, for both children and adults.

As per the guidelines of the Obesity and Metabolic Surgery Society of India (OSSI), the largest association of surgeons and integrated health members addressing obesity, pharmacotherapy i.e. use of anti-obesity or weight loss medications, along with diet and lifestyle modification, is advised as a primary treatment option for individuals who have not attained ≥ 5 per cent loss of their baseline weight despite undergoing 6 months of diet and lifestyle interventions.

Although a balance between lifestyle modification, and weight loss medication is recommended, the gradual availability of anti-obesity drugs in the market is emerging as a faster solution for the public.

For instance, the introduction of glucagon-like peptide-1 (GLP-1) receptor agonists, such as semaglutide (Wegovy) and dual agonist tirzepatide (Mounjaro/Zepbound) in the obesity space represents a groundbreaking advancement in obesity treatment. Reports reveal that Novo Nordisk's Wegovy can facilitate up to 15 per cent bodyweight reduction, while Eli Lilly's Mounjaro demonstrates even greater efficacy, exceeding a 20 per cent reduction in body weight in trial subjects. Zepbound, the new GLP-1 weight-loss drug from Eli Lilly, has outperformed its main competitor, Wegovy, in a clinical trial funded by the company.

Due to the official unavailability of weight-loss drugs like Ozempic, Mounjaro, and Wegovy in India, affluent individuals are procuring these expensive medications from other countries. However, Indian pharmaceutical companies such as Sun Pharmaceutical Industries, Dr. Reddy's Laboratories, Lupin, Torrent, and Zydus Lifesciences have a few obesity drug candidates advancing through various stages of development, ready to be available in the market very soon.

While the availability of anti-obesity drugs is gradually increasing in the country, the upcoming launch of Eli Lilly's Mounjaro in India in 2025 has sparked some debate in medical and public health circles. There are concerns about the frenzy surrounding the anti-obesity drugs and the lack of awareness about their side effects. Experts suggest that these drugs can help individuals with uncontrolled diabetes and obesity under strict clinical supervision, but they come with significant side effects, including gastrointestinal issues, nausea, vomiting, palpitations, and a disturbed metabolic state.

Studies in the US have revealed that people with obesity who take popular injected drugs like Ozempic and Wegovy to lose weight may have a higher risk of severe stomach problems than they would have with some other weight loss medications. But then, more research is also needed, particularly longer studies with larger groups of patients, to get a clearer picture of which patients might be most at risk for severe gastrointestinal side effects.

A new study by scientists from the University of Alberta suggests that weight loss medications like semaglutide, marketed as Ozempic and Wegrovy, may shrink heart muscle in addition to reducing body weight. Additionally, there are concerns about treatment affordability as these medications cost more than $1,000 a month in the US; and reports suggest that it may cost around Rs 15,000 a month in India.

On the contrary, a recent study has revealed an unexpected connection between GLP-1 receptor agonist medications, commonly used for weight management and a reduction in alcohol consumption. This groundbreaking discovery not only sheds light on the potential impact of weight loss drugs but also opens new possibilities for behavioural health treatments, especially in managing alcohol use and addiction. Also, data from two recent studies have shown that Novo Nordisk's GLP-1 drugs semaglutide (marketed as Ozempic and Wegovy) and liraglutide could help protect against Alzheimer's disease or cognitive decline in Alzheimer's, sparking a new hope.

While the pros and cons of anti-obesity drugs are still under consideration, an extensive discussion might be required among all stakeholders for its appropriate consumption. BS

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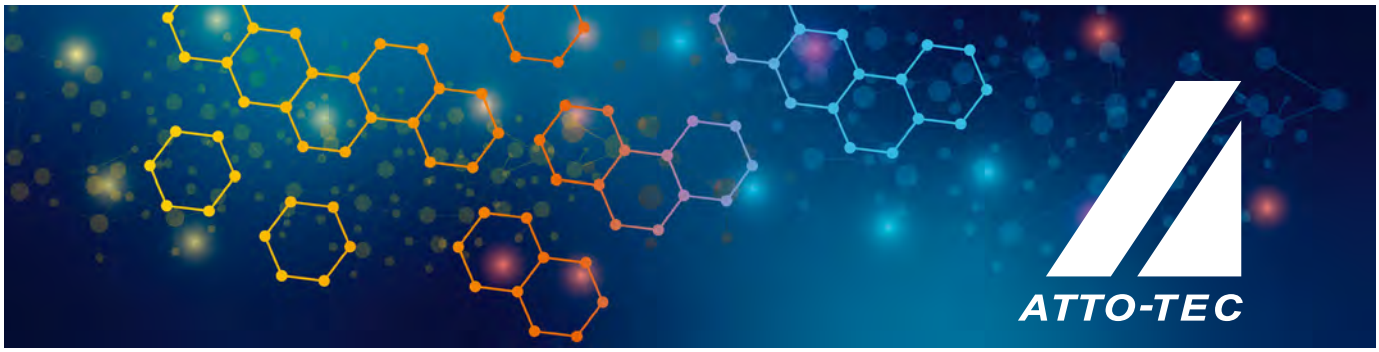

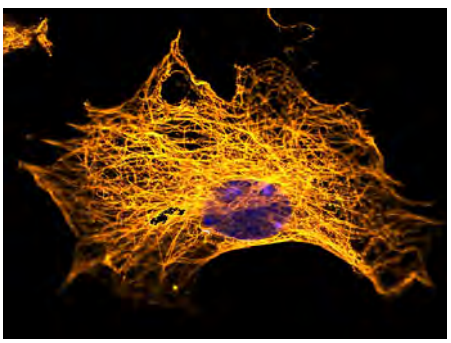

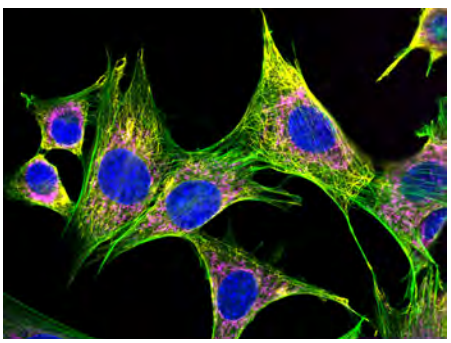

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