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Acknowledgement/ Feedback

The interview feature with Lokavant about the evolving clinical trial landscape in the Asia Pacific region, turned out great in BioSpectrum Asia's May edition. Thank you so much.

- Lisa, US

Thank you for featuring inputs from Baker McKenzie in your story on Australia's quest for ethical artificial intelligence.

- Jamie, Australia

Greetings to BioSpectrum Asia and thank you so much for the cover story article on Clinical Trials in APAC, and featuring insights from Singapore Clinical Research Institute.

- Charlene, Singapore

Thanks much BioSpectrum Asia for including Chime Biologics' comments in your story- Lure of USA for BioStartups.

- Jaxon, China

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Letter from Publisher

Ravindra Boratkar
Publisher &
Managing Editor,
MD, MM Activ Sci-Tech
Communications Pvt. Ltd.

Dear Readers,

The COVID-19-induced upsurge in biotech & pharma initial public offerings (IPOs) in 2020-21 dipped sharply in 2022 & further waned in 2023. Between 2021 & 2023, the biotech IPO market experienced a notable decline as investors grew increasingly cautious due to the uncertainties surrounding the pandemic & economic downturn. According to the Nasdaq Biotechnology Index (NBI), only 21 biotech IPOs were recorded in 2022, a significant decrease compared to the 104 biotech IPOs observed in 2021. Another report highlights that just 38 life science companies went public between 2022 and 2023, compared to 179 across 2020-2021, according to data from Silicon Valley Bank. That's the lowest in two years since 2011-2012.

Current trends indicate that biotech companies with drugs already in advanced clinical trials are best positioned for IPO success, suggesting a market preference for late-stage assets. Within the biotech space, there is a notable interest in companies focusing on innovative therapies, particularly gene and cell therapies, neurological disorders and rare diseases.

We have an article with inputs from industry experts who pointed out that this is an interesting time for biotech companies awaiting IPO funding. While there's optimism that the worst may be behind for the biotech sector, uncertainties persist. However, with ongoing developments and potential for revival, the future remains promising for those navigating the IPO journey in the biotech industry.

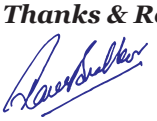
Regulators worldwide are establishing rules requiring companies to publish standardised environmental, social, and governance (ESG) information. In Europe, regulations are already in place. In the US, proposed new disclosure requirements for public companies focus on climate-related risks and relevant risk management processes. In the Asia-Pacific region, ESG regulation is accelerating due to the urgent need for greater transparency and tightened definitions for sustainable investment products.

According to a Goldman Sachs report, the twofold increase in the number of ESG policies in the region over the past five years has led to increased corporate ESG disclosure across most APAC markets, which now align with or exceed those in the US. We have done a story on the steps medtech companies took to improve sustainability and how much further they need to go to make a dent in carbon emissions.

According to the Department for Promotion of Industry and Internal Trade (DPIIT), government of India data, India is home to more than 1,17,000 startups in 2023, with nearly 10,000 being in the deep tech sector. To support and nurture the unique requirements of deep tech startups in India, the government of India has released a draft policy called the National Deep Tech Startup Policy (NDTSP) in July 2023. We have covered an interaction with Prof. Ajay Sood, Principal Scientific Advisor to the Government of India, who chaired the committee that drafted the policy, wherein he shared the tools needed to shape India's deep tech startup landscape, and the role NDTSP will play in the coming years.

I am sure you will find this edition a great read.

Thanks & Regards,



Ravindra Boratkar
Publisher & Managing Editor

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After two tumultuous years marred by geopolitical tensions and recession, the biotech sector IPOs (initial public offering) is showing signs of recovery. Experts are hopeful that this year will revive the public equity markets for biotech companies. Twelve biotech companies have gone public this year, raising a total of nearly $1.5 billion, compared to a total of only nineteen biotech companies, throughout 2023. Are biotech IPOs poised for an upswing? Is the worst finally over for biotech IPOs? Let's find out.

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ESPIONAGE PARANOIA

Dr Milind Kokje
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A strange situation is emerging in the global pharmaceutical sector due to the tightening of a law in China. The country tightened its anti-espionage laws last year. Its reaction from the Western business world, particularly the pharmaceutical sector, has started emerging now.

Factory inspectors from the Western world are refusing to visit China for inspections of the manufacturing facilities due to the fear of arrest. Some inspectors have been refused entry to the factories. This may result in disruptions in the supply chain as several Active Pharmaceutical Ingredients (APIs) come from China and non-certification of their manufacturing sites due to lack of inspections may stop the supply of APIs.

China has clarified that it opposes any attempt to denigrate its business environment by misreading the new espionage laws. The laws did not broaden the scope of espionage activity but drew a clear line between legal and illegal activities, it has said. The law plays a crucial role in safeguarding national security and is part of a comprehensive strategy to bolster the confidence and security of foreign businesses in China.

But that does not alleviate the fears in the minds of people from the industry. The German Medicines Manufacturers' Association has said that a large number of inspectors from Germany are refusing to visit China fearing detention or arrest. Drugs and their ingredients imported to the European Union and the US from other countries require audits of manufacturing sites by government inspectors and their certification. This process is obstructed by the inspectors' refusal to visit China, while in some cases, the latter is not allowing the inspectors to visit the sites. There have been over 150 incidences of US FDA inspections since 2021. The fear over the new espionage law is that the definition of espionage includes activities that endanger the national security of China that are carried out, prompted or funded by an espionage organisation and its agents, or carried out by agencies, individuals, or other collaborators domestically or outside the China borders.

Experts opine that Section 4 of the Act describes acts of espionage. It is wider than the traditional definition of espionage. It widens the scope of espionage agencies when it says activities carried out, instigated or funded by people and entities other than espionage organisations and their representatives. Business entities fear that this can include anyone, even business houses, as the scope of other than espionage organisations is very wide and can include anyone.

Besides state secrets, illegal collection of other documents, data, material or items related to national security come under the purview of espionage. This is where the key fear factor comes from. Obtaining any data from pharma manufacturing sites may be treated as data related to national security if the inspector's remarks about the company are adverse and the inspector may have to face criminal proceedings and arrest.

European Union (EU) officials feel that the law's ambiguity allows too much room for interpretation. It decreases investors' confidence and is a great concern to the European business community in the opinion of the EU Commission's Executive Vice President for Trade Relations. Fears of European inspectors only amped up with the arrest of a Japanese pharma executive for espionage in October. Considering China's strong position as a major supplier of API antibiotics and other ingredients to the Western world, disruption in their supply will immediately affect European and US companies. However, in the long run, even China will be affected.

India stands a good chance to become a supplier to the Western world as it has been trying to increase its API production by Rs 6900 crore (around $830 million) Production Linked Incentive (PLI) scheme since it also suffered in the first phase of the pandemic when supplies from China stopped. It is important to note that India has, in the last one and half years, started producing 38 APIs on which it was import-dependent earlier. With more efforts, Europe's API import market may open for India.

All said and done, if China continues on with this outlook, India will gain tremendously and the global pharma 'show will go on', with or without China's APIs. BS

Abu Dhabi unveils 'Declaration of Principles' on bioconvergence to enhance global healthcare outcomes

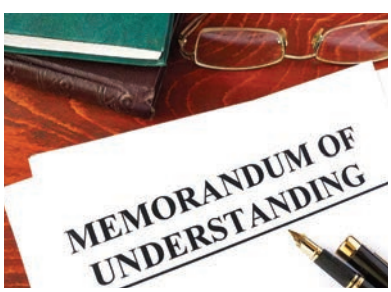
The Department of Health – Abu Dhabi (DoH), the regulator of the healthcare sector in the Emirate, has unveiled a 'Declaration of Principles on Bioconvergence', to transform healthcare, improve human health and well-being. As a first-of-its-kind initiative, the Declaration outlines global principles covering guidance on transparency, accountability, and bias mitigation, as well as research ethics and ethical decision-making in the field of Bioconvergence. The Declaration of Principles will witness leading local and global entities collaborate with DoH including Amazon, Microsoft, UAE University (UAEU), Mohammad Bin Zayed University for AI (MBZUAI), Core 42 and Masdar City. Segmented into six strategic pillars, the principles aim to advance Bioconvergence research and development, encourage investment in the field to address urgent healthcare challenges, establish international cooperation frameworks, prioritise research areas in public health and personalised medicine, and promote the adoption of advanced technologies such as Artificial Intelligence (AI) and nanomedicine.

Indonesia's Health Ministry expands collaboration with Google Cloud

The Ministry of Health of the Republic of Indonesia has announced an expanded collaboration with Google Cloud to support the development of healthcare-specific generative AI (gen AI) innovations, aligning with the goals set out in the Indonesian government's blueprint for digital health transformation and Digital Indonesia Vision 2045 initiative. Building on the two organisations' collaboration starting in 2022, Google Cloud has established a safe and secure environment to test its enterprise-grade and medically-tuned gen AI innovations, enabling them to be tailored to address the unique healthcare needs of Indonesians. The latest collaboration is part of the government's objective to improve healthcare access, experiences, and outcomes for every individual in Indonesia, and complements ongoing efforts with Google Cloud to enhance processes in Indonesia's healthcare sector.

Singapore's HSA inks MoU with Health Ministry in Malaysia

Singapore's Health Sciences Authority (HSA) and the Ministry of Health, Malaysia have signed a Memorandum of Understanding (MoU) for continued cooperation in matters pertaining to pharmaceutical products and cosmetics including post-market vigilance, enforcement and Good Clinical Practice for clinical trials. This MoU is a renewal of the MoU signed in 2012 and marks an important milestone in solidifying ties between the two regulatory authorities. As National Drug



Regulatory Agencies, both HSA and the National Pharmaceutical Regulatory Agency (NPRA), Ministry of Health of Malaysia, protect public health and safety of their respective nations by ensuring the safety, quality and efficacy of pharmaceutical products and cosmetics manufactured in, imported and exported from Singapore and Malaysia. The MoU was signed in Singapore at the Health Sciences Authority's Outram building by Dr Choong May Ling, Mimi, Chief Executive Officer of HSA, and Norhaliza A. Halim, Senior Director of Pharmaceutical Services, Ministry of Health, Malaysia.

Australia invests $1.89B for health and medical research transformation

The government is investing in a once in a generation transformation of health and medical research in Australia. This will mean that patients get easier and earlier access to potentially lifesaving clinical trials, and Australia gets better value from the $1.5 billion in research grants awarded each year, and health priorities get more funding like women's health, reducing health system inequality, and cancers with low survival rates. The 'Health Research for a Future Made in Australia' package has a total

investment of $1.89 billion, and includes $1.4 billion for new research via the Medical Research Future Fund (MRFF); $411 million to support 229 researchers to tackle the nation's greatest health challenges, through the NHMRC; $62 million to support 26 clinical trials from around Australia, through the MRFF; and $18.8 million to progress the National One Stop Shop for clinical trials and health research. The MRFF and the National Health and Medical Research Council (NHMRC) deliver $1.5 billion in grants each year. The government will develop a National Health and Medical Research Strategy (National Strategy) to build on the national strengths and fill any gaps, while attracting researchers and investors.

Korea-Saudi Arabia discuss healthcare cooperation

Cho Kyoo-Hong, Minister of Health and Welfare in South Korea recently met with Yousef Bin Abdullah Al-Benyan, Minister of Education of Saudi Arabia, in Seoul, to discuss ways to strengthen healthcare cooperation, including expanding the training of medical personnel, between Korea and Saudi Arabia.

During the meeting, the two ministers agreed on the need to train specialised medical personnel in response to the rapidly changing medical environment and to continue to advance bilateral policy cooperation, including their vision of the agreement on the training of Saudi medical personnel. In addition, Minister Cho shared the recent issues of interest in the healthcare sector, including the sending of Saudi government-funded patients and elevation of Korean medical licenses to a higher group, to expand medical personnel exchange and healthcare cooperation between the two countries.

India launches Meditech Stackathon 2024 for Value Chain Mapping of medical devices

Dr Arunish Chawla, Secretary, Department of Pharmaceuticals, Ministry of Chemicals and Fertilizers, Government of India, has launched the Meditech Stackathon 2024 in collaboration with Confederation of Indian Industry (CII). The Stackathon is a groundbreaking initiative designed to catalyse transformative change within India's burgeoning medtech sector by undertaking a comprehensive value chain analysis of select medical devices. Through close consultation with industry leaders, policymakers, and experts, the Stackathon aims to address critical challenges, foster domestic manufacturing, and reduce import dependence, thereby positioning India as a global leader in medical technology. The Stackathon would deliberate in eight focused groups namely Cancer Therapy, Imaging, Critical Care, Assistive Medical Devices, Body Implants, Surgical instruments and Hospital Equipment, Consumables & Disposables, and IVD Instruments and reagents, each tasked with specific objectives including segment-wise identification of important medical devices, assessment of import-export dynamics, examination of duty structures, and their implications across the entire value chain.

IDT to build Australia's first commercial ADC manufacturing facility with $3.8M investment

IDT Australia has been awarded a Victoria State Government grant to part fund the establishment of Australia's first cGMP Antibody-Drug-Conjugate (ADC) manufacturing facility. The grant from the Victorian Industry Investment Fund (VIIF) stream of the Victorian Jobs and Investment Fund (VJIF) is for IDT Australia's new $3.8 million commercial Contract Design and Manufacturing Organisation (CDMO) facility in Boronia, Victoria for ADCs, a new class of oncology drugs that precisely target cancer cells while sparing healthy ones. IDT has established early relationships with ADC biotech companies including a master services agreement with Nagase & Co., a globally renowned Japanese pharmaceutical supplier, to develop and manufacture linker, payloads and bioconjugation services for global pharmaceutical companies. Under the condition of the grant, IDT Australia is contracted to meet project milestones including part funding of the capital works and new advanced technology job offers.

Saudi Arabia pledges $500M to protect children from polio

At the first-ever World Economic Forum (WEF) Special Meeting hosted in Riyadh recently, the Kingdom of Saudi Arabia has pledged $500 million over the next five years to support the work of the Global Polio Eradication Initiative (GPEI). This announcement marks a significant increase in funding for the global effort to eradicate polio, a devastating virus that paralyses and can be fatal for children but is preventable with vaccines. The funds announced will enable GPEI partners – the Bill & Melinda Gates Foundation (BMGF), Gavi, the Vaccine Alliance, Rotary International, the United Nations Children's Fund (UNICEF), the US Centers for Disease Control and Prevention (CDC), and the World Health Organization (WHO) – spearheaded by national governments, to protect more than 370 million children with polio vaccines every year. It will also facilitate the delivery of other life-saving interventions like nutritional supplements and bed nets to underserved communities and strengthen health systems to better prepare countries for emerging health threats. The commitment was made as part of a broader more than $620 million partnership by Saudi Arabia and BMGF to support polio eradication and contribute to other global health initiatives, including the Lives and Livelihoods Fund.

Sciwind Biosciences & HK inno.N ink $56M deal to treat metabolic diseases in Korea

Sciwind Biosciences Co., a clinical stage biopharmaceutical company focused on developing treatments for metabolic disease, and HK inno.N Corporation, a South Korean commercial stage pharmaceutical company, have announced a licensing and partnership agreement for the development and commercialisation of ecnoglutide injection (XW003), a novel GLP-1 analog for the treatment of type 2 diabetes, obesity and metabolic dysfunction-associated steatohepatitis (MASH), in South Korea. Under the terms of the agreement, Sciwind Biosciences will receive an upfront payment and will be eligible to receive additional development, regulatory, and commercial milestones of up to $56 million, as well as up to double-digit royalties from future product sales. HK inno.N Corporation will receive the exclusive rights to develop and commercialise ecnoglutide in the Republic of Korea. Sciwind Biosciences retains the right to develop and commercialise ecnoglutide in all other global markets.

AC Immune, Takeda Pharma ink $2.1B deal for immunotherapy to delay Alzheimer's progression

Japan-headquartered pharmaceutical firm Takeda and Swiss firm AC Immune SA have announced an exclusive, worldwide option and license agreement for AC Immune's active immunotherapies targeting toxic forms of amyloid beta (Abeta), including ACI-24.060 for the treatment of Alzheimer's disease. ACI-24.060 is an anti-Abeta active immunotherapy candidate designed to induce a robust antibody response against the toxic forms of Abeta believed to drive plaque formation and Alzheimer's disease progression.

By inducing plaque clearance and efficiently inhibiting plaque formation in the brain, ACI-24.060 has the potential to delay or slow Alzheimer's disease progression. ACI-24.060 is being investigated in the ongoing ABATE randomised, double-blind, placebo-controlled Phase 1b/2 trial to assess the safety, tolerability, immunogenicity & pharmacodynamic effects of the investigational immunotherapy in subjects with prodromal Alzheimer's disease and in adults with Down syndrome. Under the terms of the agreement, AC Immune will receive an upfront payment of $100 million and be eligible to receive an option exercise fee & additional potential development, commercial & sales-based milestones of up to approximately $2.1 billion if all related milestones are achieved over the course of the agreement.

NephroPlus raises Rs 850 Cr in Series F round from Quadria Capital

Quadria Capital, one of Asia's largest healthcare-focused private equity firms, has announced an investment of Rs 850 crore in India-based NephroPlus, Asia's largest dialysis network. Through this transaction, Quadria will acquire a significant minority stake through a combination of a primary investment and the purchase of shares from existing shareholders. The transaction will support NephroPlus in serving the growing demand for high quality, affordable dialysis services across India and other markets in Asia. Founded in 2010, NephroPlus is a uniquely positioned dialysis provider operating in sizeable, high-growth markets across Asia with dominant leadership in India and a fast-growing footprint in the Philippines and other Asian countries. The company serves patients across dialysis centres in marquee hospitals and at standalone clinics, working with leading nephrologists. NephroPlus also delivers care through public-private partnerships in both urban and rural areas.

GHIT invests $10.8M to develop new drugs for malaria & NTDs

The Global Health Innovative Technology (GHIT) Fund, a Japan-based international public-private partnership (PPP) fund, has announced a total investment of approximately JPY 1.64 billion ($10.8 million) in four projects for the development of new drugs for malaria and neglected tropical diseases (NTDs). The GHIT Fund will invest approximately JPY 444 million ($2.9 million) in two malaria projects: the development of malaria chemoprevention drug through a partnership among Shionogi & Co., Nagasaki University, National Institute of Infectious Diseases, and Medicines for Malaria Venture (MMV), and therapeutic drug development led by Eisai Co., the Scripps Research Institute, and International Centre for Genetic Engineering and Biotechnology (ICGEB). For NTDs, the GHIT Fund will invest approximately JPY 1.2 billion ($7.9 million) in two projects: drug development for onchocerciasis and lymphatic filariasis led by Eisai Co., University Hospital Bonn, and Helmholtz Centre for Infection Research, and the development of a treatment for Chagas disease led by Mitsubishi Tanabe Pharma Corporation and Drugs for Neglected Diseases initiative (DNDi).

Singapore opens first public-private partnership centre for specialty molecular testing

The National University Hospital (NUH) and Mirxes have announced the opening of the NUH DMOC@Biopolis, one of Singapore's first public-private partnership centres for specialty molecular testing. The NUH DMOC@Biopolis is an extension of NUH's Diagnostic Molecular Oncology Centre (DMOC) that co-locates and integrates with Mirxes' clinical laboratory, M Diagnostics at Biopolis. The Centre was inaugurated recently by Heng Swee Keat, Deputy Prime Minister; Coordinating Minister for Economic Policies, and Chairman of the National Research Foundation (NRF). The culmination of a partnership first initiated in September 2020 and operational since April 2023, the NUH DMOC@ Biopolis holds a unique distinction- two clinical laboratories accredited with their respective HCSA (Healthcare Services Act) licenses at a single site. It marks the integration of NUH's extensive clinical expertise with Mirxes' cutting-edge molecular testing infrastructure, catalysing the development and adoption of medical innovations in clinical settings. This unique and timely partnership also brings together expertise and resources from both public and private sectors, fostering knowledge sharing and innovation in specialty molecular testing.

Novartis, Monash University partner to improve heart health in Australia

Monash University, Monash Health and Swiss firm Novartis have announced a unique Australian partnership in the fight against cardiovascular disease, Australia's most significant health challenge responsible for 1 in 4 deaths and claiming an Australian life every 12 minutes. The strategic partnership brings together the strengths of academia, the public health network and industry to work collaboratively to deliver education, innovation and clinical trials that can respond quickly to sector needs. With an initial focus on digital health infrastructure, the partnership facilitates grant funding that will see the creation of the Coronary Heart Disease and Heart Failure analytics driven 'Living Lab'. This initiative will leverage clinical data to create tools including visual dashboards to aid in identifying opportunities in care and risk management, supporting clinicians to make real-time decisions for lipid (cholesterol) management and heart failure.

Seegene announces strategic alliance with Springer Nature to foster collaboration with researchers

Seegene Inc., a leading South Korean company providing a total solution for PCR molecular diagnostics, has announced the signing of a strategic alliance agreement with Springer Nature, the publisher of the prestigious scientific journal, Nature. The new alliance will see the two companies use their joint expertise and knowledge to support researchers across the global scientific community to speed up PCR diagnostic testing of important but various disease areas. PCR molecular diagnostics companies develop only a few diagnostic products annually. By leveraging the Springer Nature network, the two companies will provide funding and technology to global scientists and experts in various fields, significantly broadening the range and potential of diagnostic products. This initiative, spearheaded by senior management at both companies, builds upon the success of the Open Innovation Programme that was launched by the two companies in 2023 whose goal was to develop innovative diagnostic products with participation of the scientific community.

Abu Dhabi partners with GSK to establish regional vaccine distribution hub

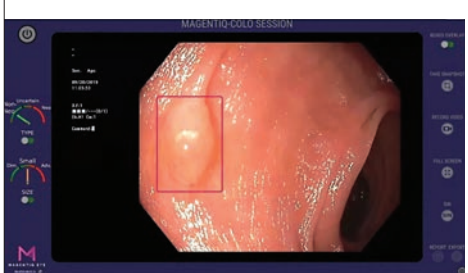
The Department of Health – Abu Dhabi (DoH), the regulator of the healthcare sector in the United Arab Emirate (UAE), has signed a Memorandum of Understanding (MoU) with British pharmaceutical firm GlaxoSmithKline (GSK), to establish a regional vaccine distribution hub in Abu Dhabi. The key pillars of the collaboration are: the establishment of a regional vaccine distribution hub in Abu Dhabi; working together to maximise the strategic and healthcare impacts of the establishment of the GSK vaccine regional distribution hub; collaborating to ensure its successful establishment and operation; and exploration of opportunities to foster knowledge exchange and capability building through collaboration between GSK and the UAE; and jointly focusing on prevention strategies to address public health challenges. This strategic approach emphasises the critical role of robust immunisation programmes in addressing the evolving healthcare landscape. As the UAE navigates demographic shifts, prevention emerges as a core principle driving these strategies.

Serum Institute of India invests in needle-free injection system technology

Serum Institute of India (SII) has announced a strategic investment in Pune-based startup IntegriMedical, acquiring a 20 per cent stake in the company, to advance Needle-Free Injection System technology. The partnership between SII and IntegriMedical aligns with SII's vision of 'Health for All' and IntegriMedical's mission to 'Transform Healthcare Globally' by providing patient comfort, ensuring increased patient compliance, reducing needle-stick injuries, and enhancing the efficacy of liquid medication via needle-free dispersion. IntegriMedical has developed a US patented Needle-Free Injection System (N-FIS) that utilises high-velocity jet streams using mechanical power to effectively and consistently administer biologics and drugs. The innovative drug delivery solution aims to alleviate pain during administration, providing needle-phobic patients with a pleasant and stress-free experience. N-FIS will be available in the Indian private market, offering patients and healthcare providers an alternative to traditional needle-based injections. The technology's advantages include the elimination of needle-phobia, alleviation of pain during administration, convenience of use, and prevention of needle-stick injuries and cross-contamination.

HOYA Group to distribute AI-assisted lesion detection device in US

Japan-based HOYA Group Company, PENTAX of America, Inc. (PENTAX Medical, a division of HOYA Group) and MAGENTIQ-EYE, an artificial intelligence (AI)-based medical device company, have announced their intention to form a partnership in the field of AI in gastroenterology and to examine further collaboration and strategic partnerships. Pending field trials and customer demonstrations to be conducted over the next several months, the companies expect to formalise an agreement as a first step in this partnership, by which PENTAX Medical will distribute the MAGENTIQ-COLO AI-assisted lesion detection device in the US beginning October 1, 2024. MAGENTIQ-COLO is a cutting-edge system for the detection of gastrointestinal lesions in colonoscopies. Successfully validated in an international multicenter, randomised, controlled trial (RCT) with 950 enrolled patients at 10 hospitals in Europe, United States and Israel, its outstanding diagnostic capabilities are setting new standards in endoscopic AI.



Allozymes raises $15M paving way for new partnerships in pharma and life science industry

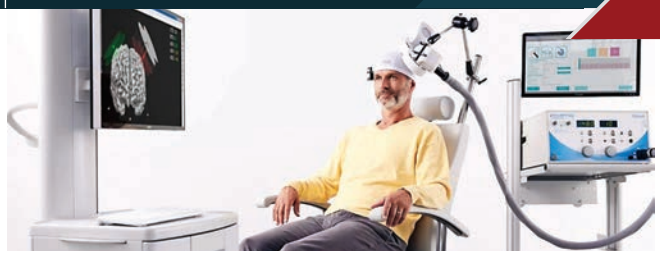
Allozymes, a leading innovator in enzyme discovery and engineering, has announced the closing of a $15 million Series A funding round led by Seventure Partners of France and Xora Innovation of Singapore. This significant investment underscores the growing recognition of Allozymes' transformative potential, accelerates its expansion into Europe, and forges strategic partnerships within the food and chemical industries while paving the way for new partnerships in the pharmaceutical and life science industry. Additionally, the funding will fuel the development of the industry's most comprehensive enzyme data library for future enzyme discovery endeavours. The funds will be utilised by Allozymes to develop robust biosolutions for partners in the pharmaceutical and life science industry, enabling innovative products like sugar alternatives, sustainable production of high-value ingredients, bioremediation, and biosecurity. New investors include NUS Technology Holdings and Thia Ventures, while SOSV, and Entrepreneur First, continued their investment in the company in this round of funding.

Sanskritech Smart Solutions ventures into Africa

India-based startup Sanskritech Smart Solutions has announced its expansion into Africa with a significant stride into the Republic of Malawi. In a landmark move, Sanskritech has formalised a Memorandum of Understanding (MoU) with the Republic of Malawi, aimed at introducing cutting-edge healthcare solutions to the country's healthcare sector. The formal signing ceremony of the MoU took place in the presence of Pritam Kumawat, CEO of Sanskritech Smart Solutions, and Dr Lazarus McCarthy Chakwera, President of the Republic of Malawi. The cornerstone of this collaboration is the introduction of Swandook, the world's first ultra-portable, ultra-smart Anytime Health Monitoring Bag. This novel product is poised to transform healthcare accessibility and efficiency in Malawi, addressing critical needs in remote healthcare management. Sanskritech plans to expand its footprint to other countries worldwide.

GIBF invests $10M in Israel's Nectin Therapeutics to advance ADCs

Guangzhou-Israel Biotechnology Fund (GIBF) has invested $10 million in Nectin Therapeutics. Israel-based startup Nectin is a biotechnology company developing novel targeted immunotherapies that address resistance to approved immune oncology treatments. The funds will be used to continue the development of Nectin's portfolio of novel immuno-oncology products, including the advancement of Nectin's ongoing NTX1088 global Phase 1 clinical trial targeting PVR and the preclinical development of its anti-drug conjugate (ADC) portfolio. NTX1088 is Nectin's First-in-Class lead candidate - a highly potent monoclonal antibody directed against PVR (CD155), a transmembrane protein expressed on cancer cells and associated with resistance to PD1 and PDL1 immune checkpoint inhibitors. PVR blockade by NTX1088 is the first and only therapeutic approach aiming at restoring the antitumor immune activity of DNAM1 (CD226). DNAM1 is a cell surface glycoprotein, central to the function of T and NK cells, that is suppressed by PVR on tumor cells.



Neurocare receives $17M investment to improve healthcare access in Middle East

TVM Capital Healthcare, a specialist healthcare private equity firm headquartered in Dubai and Singapore, has announced a $17 million investment into Munich-headquartered startup neurocare group AG (neurocare), a leading innovator in personalised mental healthcare, providing solutions to empower clinicians to deliver best care to their patients. TVM Capital Healthcare's investment will enable neurocare to execute on its international growth plans, including expansion in the US and market entry into the Kingdom of Saudi Arabia, as well as support the development of new hardware and software innovations. It is the ninth investment of TVM Capital Healthcare to improve local access to quality healthcare in the Middle East and North Africa region. neurocare, through its digital therapy platform, provides a holistic and patient centric treatment for a variety of psychological or neurological conditions. It uses innovative mental healthcare methods & tools including sleep assessment, therapeutics, psychotherapy, TMS & neurofeedback, all supervised within a cloud-based solution, to empower clinicians & deliver individualised care.

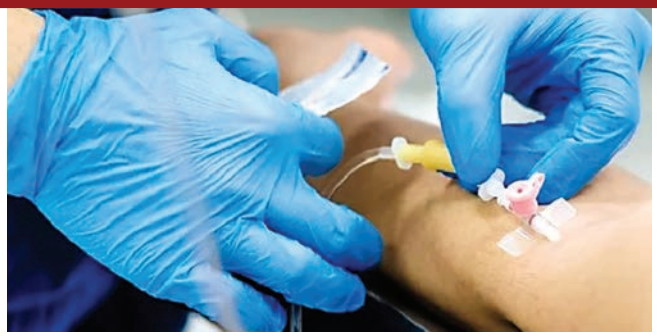
Anaut gets MHLW's approval for AI-powered surgical visualisation tool 'Eureka α'

Japan-based startup Anaut Inc., a pioneering developer in surgical support software led by Dr Nao Kobayashi, has announced the regulatory approval of its groundbreaking medical device, 'Eureka α'. This first-of-its-kind software device in Japan received approval from the Ministry of Health, Labour and Welfare (MHLW) and is set to transform surgical practices with its advanced artificial intelligence (AI) capabilities. Eureka α utilises state-of-the-art AI to analyse real-time video from laparoscopic and robotic surgery, enhancing surgeons' accuracy by highlighting the dissection planes characterised by connective tissue. Supported by expert-guided training data, the technology harnesses deep learning and computer vision technologies to improve surgical precision and safety. The development of Eureka α was made possible by a robust partnership with over 20 of Japan's largest and most prominent academic research institutions and medical university hospitals.

WestGene's mRNA therapeutic cancer vaccine receives US FDA approval

WestGene, a China-based biotech startup dedicated to mRNA technology, has announced a historic milestone with the US FDA IND approval of its mRNA therapeutic cancer vaccine, WGc-043. This landmark achievement marks the world's first approval of an Epstein-Barr (EB) virus-related mRNA therapeutic cancer vaccine. The US FDA approval of WGc-043 represents a significant advancement in cancer treatment, offering new hope to patients with advanced

EB virus-related cancers. EB virus is highly correlated with more than ten malignancies, including nasopharyngeal carcinoma (NPC), natural killer T-cell lymphoma (NKTL), gastric cancer, lung cancer, liver cancer, esophageal cancer, breast cancer, cervical cancer, and autoimmune diseases such as multiple sclerosis and systemic lupus erythematosus. WGc-043 shows promising efficacy, low toxicity, broad applicability, efficient scalability, and cost effectiveness. WGc-043 has already completed investigator-initiated trials (IIT) in NPC and NKTL, demonstrating superior safety and efficacy compared to other publicly available mRNA therapeutic cancer vaccines.



New guidance by WHO aims to reduce bloodstream infections from catheter use

The World Health Organization (WHO) has published the first global guidelines to prevent the occurrence of bloodstream and other infections caused by use of catheters placed in minor blood vessels during medical procedures. Poor practices in the insertion, maintenance, and removal of these catheters carry a high risk of introducing germs directly to the bloodstream, which can lead to serious conditions such as sepsis, and difficult-to-treat complications in major organs like the brain and kidneys. Soft tissue infections at the insertion site of the catheter can also occur. Developing and implementing guidance to prevent the spread of such infections has been a key priority for WHO. The new guidelines include 14 good practice statements and 23 recommendations on key areas for health workers, including education and training of health workers; techniques of asepsis and hand hygiene practices; insertion, maintenance, access, removal of catheters, and catheter selection.

WHO updates list of drug-resistant bacteria most threatening to human health

The World Health Organization (WHO) has released its updated Bacterial Priority Pathogens List (BPPL) 2024, featuring 15 families of antibiotic-resistant bacteria grouped into critical, high and medium categories for prioritisation. The list provides guidance on the development of new and necessary treatments to stop the spread of antimicrobial resistance (AMR). The updated BPPL incorporates new evidence and expert insights to guide research and development (R&D) for new antibiotics and promote international coordination to foster innovation. The critical priority pathogens, such as gram-negative bacteria resistant to last-resort antibiotics, and Mycobacterium tuberculosis resistant to the antibiotic rifampicin, present major global threats due to their high burden. High priority pathogens, such as Salmonella and Shigella, are of particularly high burden in low- and middle-income countries, along with Pseudomonas aeruginosa and Staphylococcus aureus, which pose significant challenges in healthcare settings. Other high priority pathogens, such as antibiotic-resistant Neisseria gonorrhoeae and Enterococcus faecium, present unique public health challenges.

WHO prequalifies Takeda's dengue vaccine

A new vaccine for dengue has received prequalification from the World Health Organization (WHO). TAK-003 is the second dengue vaccine to be prequalified by WHO. Developed by Takeda, it is a live-attenuated vaccine containing weakened versions of the four serotypes of the virus that cause dengue. WHO recommends the use of TAK-003 in children aged 6–16 years in settings with high dengue burden and transmission intensity. The vaccine should be administered in a 2-dose schedule with a 3-month interval between doses. The WHO prequalification list also includes CYD-TDV vaccine against dengue developed by Sanofi Pasteur. It is estimated that there are over 100-400 million cases of dengue worldwide each year and 3.8 billion people living in dengue endemic countries, most of which are in Asia, Africa, and the Americas. The largest number of dengue cases reported was in 2023 with the WHO Region of the Americas reporting 4.5 million cases and 2300 deaths. Dengue cases are likely to increase and expand geographically due to climate change and urbanisation.

Global partners launch African Public Health Institutes Collaborative

Three global health partners have launched a pioneering peer-to-peer learning initiative, the African Public Health Institutes Collaborative (APHIC), highlighting the importance of strengthening collaborations across core public health functions to have greater impact by working together. The new initiative is a collaboration between the Africa Centres for Disease Control and Prevention (Africa CDC), the US President's Emergency Plan for AIDS Relief (PEPFAR) within the State Department Bureau of Global Health Security & Diplomacy, and the United States Centers for Disease Control and Prevention (US CDC). Aimed at bolstering leadership within National Public Health Institutes (NPHIs), fortifying resilient health systems, and enhancing essential public health functions, this collaborative venture will sustain the gains and impact in HIV response across the continent. Key activities of APHIC will be implemented through collaborative engagements with leaders of NPHIs in Africa to include sharing of best practices, challenges, opportunities, and lessons learned on HIV-related systems activities, leveraging plans for support of NPHIs in PEPFAR's Country/Regional Operational Plan 2023 (COP23) and ongoing NPHI investments through other bilateral and multilateral institutions.

Gavi and Lesotho announce resumption of direct funding

Gavi, the Vaccine Alliance and the Government of Lesotho have signed a Letter of Intent on the resumption of direct funding to the Government of Lesotho, following the successful implementation of pre-disbursement financial systems requirements. The development follows a programme launched in 2022 by Gavi to support Lesotho in strengthening its financial management capabilities to enable the country to address all Grant Management Requirements (GMRs). As of April 2024, all mandatory GMRs have been successfully addressed, enabling Gavi to resume direct funds disbursement through the government system from the second half of 2024. Gavi will also continue to provide public financial management capacity-building support through the end of 2025 to ensure financial management assistance is available at both the national and sub-national levels to ensure sustainability.

GAFFI and PAHO join forces to combat fungal disease in Latin America and the Caribbean

The Global Action Fund for Fungal Infections (GAFFI) and the Pan American Health Organization (PAHO) have recently signed a Memorandum of Understanding (MoU) to work together to improve the diagnosis and treatment of fungal diseases. The agreement, which formalises years of successful collaboration between the two agencies to improve patient health, focuses on cooperation to decrease the impact of fungal disease in the Americas by implementing public health interventions, surveillance, and research strategies targeted at the most important fungal pathogens. Under the MoU, GAFFI and PAHO will coordinate the participation of expert professionals and activities at country and regional level; provide technical cooperation and expertise for the development of guidelines, and protocols related to detection, surveillance, laboratory testing, and clinical management, leveraging artificial intelligence (AI) where appropriate; and contribute to research and evidence for the development of biobanks, digital databases, and genomic research.

EPA, FDA, and USDA issue joint regulatory plan for biotechnology

In response to US President Biden's Executive Order 14081, "Advancing Biotechnology and Biomanufacturing Innovation for a Sustainable, Safe, and Secure American Bioeconomy," the US Environmental Protection Agency (EPA), the US Food and Drug Administration (FDA), and the US Department of Agriculture (USDA) have developed a plan to update, streamline, and clarify their regulations and oversight mechanisms for products of biotechnology. The plan helps meet the President's goals of ensuring public confidence in the biotechnology regulatory system and improving its transparency, predictability, coordination, and efficiency. Through engagement with developers and stakeholders, as well as horizon scanning for novel biotechnology products, the Agencies worked collaboratively to develop a cohesive plan. The plan incorporates processes and timelines to implement regulatory reform, such as identifying guidance and regulations to update, streamline, or clarify, and identifying the potential need for new guidance or regulations. The plan supports a whole-of-government approach to the regulation of biotechnology products.

UK announces 5-year plan to combat antimicrobial resistance

A new plan to tackle antimicrobial resistance (AMR), a global issue that makes infections difficult or impossible to treat, has been launched by the UK government. The national action plan will commit the UK to reducing its use of antimicrobials such as antibiotics, antifungals and antivirals, in humans and animals, strengthen surveillance of drug-resistant infections before they emerge and incentivise industry to develop the next generation of treatments. It commits to continue to innovate through initiatives such as indicating that the world-first 'subscription model' for antimicrobials, which was launched in 2019 as a pilot, could be expanded. This will see more companies paid a fixed annual fee for antimicrobials based primarily on their value to the NHS, as opposed to the volumes used. The plan will build on progress towards the UK's 20-year vision for antimicrobial resistance, which will see AMR contained, controlled and mitigated - protecting public health by increasing the risk of disease spread, severe illness, disability and death. This is the second of a series of 5-year national action plans that will ensure sustained progress by tackling the global threat of AMR.

US study highlights increasingly dangerous illicit drug supply

Law enforcement seizures of illicit fentanyl increased dramatically in number and size between 2017 to 2023 in the US, especially in pill form, according to a new study funded by the National Institutes of Health's (NIH) National Institute on Drug Abuse (NIDA). The number of individual pills containing fentanyl seized by law enforcement was 2,300 times greater in 2023 compared to 2017, with 115,562,603 pills seized in 2023 vs. 49,657 in 2017. The proportion of fentanyl pill seizures to the total number of fentanyl seizures more than quadrupled, with pills representing 49 per cent of illicit fentanyl seizures in 2023 compared to 10 per cent in 2017. The study also found a significant increase in the number and weight of fentanyl-containing powder seizures during this time. Although fentanyl seizures were historically less common in the Western US, this analysis found that this region now accounts for most of law enforcement seizures of fentanyl overall, as well as total weight of fentanyl seized.

IPO FEVER GRIPS BIOTECH INDUSTRY

After two tumultuous years marred by geopolitical tensions and recession, the biotech sector IPOs (initial public offering) is showing signs of recovery. Experts are hopeful that this year will revive the public equity markets for biotech companies. Twelve biotech companies have gone public this year, raising a total of nearly $1.5 billion, compared to a total of only nineteen biotech companies, throughout 2023. Are biotech IPOs poised for an upswing? Is the worst finally over for biotech IPOs? Let's find out.

After the highs of COVID-19-led to bumper years for biotech and pharma IPOs in 2020 and 2021, there was a steep drop in 2022, followed by a further decline in 2023. Between 2021 and 2023, the biotech IPO market experienced a notable decline as investors grew increasingly cautious due to the uncertainties surrounding the pandemic and economic downturn. According to the Nasdaq Biotechnology Index (NBI), only 21 biotech IPOs were recorded in 2022, a significant decrease compared to the 104 biotech IPOs observed in 2021. Another report highlights that just 38 life science companies went public between 2022 and 2023, compared to 179 across 2020-2021, according to data from Silicon Valley Bank. That's the lowest in a two-year period since 2011-2012.

In 2024, several pharmaceutical companies announced significant funding efforts and IPOs to advance their innovative therapies. The latest entrant is Rapport Therapeutics, backed by Johnson & Johnson, filed for an IPO to develop small-molecule medicines for central nervous system disorders, targeting epilepsy, peripheral neuropathic pain, and bipolar disorder on May 17. Earlier, on April 4, Contineum Therapeutics raised $110 million to develop novel oral small molecule therapies for neuroscience, inflammation, and immunology. Boundless Bio, focusing on extrachromosomal DNA biology to treat oncogene-amplified cancers, unveiled a $100 million IPO on March 27. Chinese biotech Qyuns Therapeutics, specialising in biologic antibody drugs for autoimmune and allergic diseases, raised approximately $31.10 million through an IPO on March 20. Other notable funding efforts included Kyverna Therapeutics with $319 million on February 7 for pioneering cell therapies for autoimmune diseases, and CG Oncology with $380 million on January 24 for developing bladder-sparing cancer therapeutics. These developments have reinvigorated the momentum in an otherwise stagnant biotech IPO landscape.

Sudden surge

Is the worst finally over? This has been weighing on the minds of many in the industry.

Explains Yiming Liu, Partner at Cooley, "The expected rebound in biotech IPOs is driven by a convergence of favourable factors. Despite the broader economic uncertainties, the biotech sector remains robust, propelled by continued innovations in various therapeutic strategies and modalities around the world, including Asia/China. These innovations show significant promise translating into medicines, and are highly attractive to investors looking for the next breakthrough technology or blockbuster drug".

"After several years of valuation adjustments", continues Yiming, "the current, more moderate valuation levels of many Chinese biotechs are now appealing to secondary investors. Additionally, the shift towards profitability among successful biotech companies has bolstered investor confidence in their business models. With global capital markets gaining stability and liquidity improving, an increasing number of biotech firms are now poised to go public, seeking funds to drive further research and development."

"There is a fundamental desire from healthcare investors to invest in innovation, and the biotech sector is an amazing place to deploy capital that directly translates into extraordinary impact," adds Jordan Saxe, Head of Healthcare Listings at Nasdaq.

He further said, " Because biotech focuses on curing disease and improving patient outcomes, companies in this sector have a huge effect on patient lives and can provide positive economic returns for investors. Biotech investors tend to invest in companies across the sector and at all stages, making for considerable momentum and capital coming into Nasdaq, the exchange of choice for biotech, and the Nasdaq Biotech Index (NBI). There is a significant amount of capital in the marketplace looking for investment opportunities and this year, we're really starting to see that money be deployed accordingly."

Despite wariness from investors towards pre-profit companies in some industries, post-pandemic the healthcare sector continues to generate plenty of excitement and investor interest driven by a strong pipeline of new drugs and innovative technologies.

"The hope for a sustained rebound in biotech IPOs is underpinned by a number of factors, including a rise in early-stage private capital funding and general optimism within the sector. This positive outlook is supported by the recovery of biotech's main stock funds and increased dealmaking," said Adam Farlow, Global Chair of Baker McKenzie's Capital Markets Practice Group.

While there has been a rebound in biotech IPO activity, experts caution against overly optimistic expectations. Despite the recent surge in funding and IPOs in the biopharmaceutical sector, several factors warrant careful consideration.

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senior capital markets and US securities lawyer, Baker McKenzie, Hong Kong

sentiment and we expect windows of opportunity for IPOs to emerge, we do not anticipate a full risk-on approach with a green light for all companies. There has been a general trend over the past few years for certain growth companies to remain private for longer. The increase in the availability of private credit, as a separate category from PE investment, has provided a way to address funding requirements without the need to sacrifice any ownership and/or control and has thrown a lifeline to companies seeking an alternative source of funding. The public markets continue to remain selective at this point in the cycle with early-stage biotech companies likely to face the steepest path to market. Such companies may need to rely on private capital to fund further growth and progress," said Sheng Chen, senior capital markets and US securities lawyer at Baker McKenzie in Hong Kong.

Biotech IPOs drive innovation wave

Biotech companies holding unique, high-potential assets—particularly those with first-in-class or best-in-class therapies—are capturing significant investor interest. Current trends indicate that biotech companies with drugs already in advanced clinical trials are best positioned for

IPO success, suggesting a market preference for late-stage assets. Within the biotech space, there is a notable interest in companies focusing on innovative therapies, particularly gene and cell therapies, neurological disorders and rare diseases.

"Notably, oncology drugs employing innovative modalities like antibody-drug conjugates, radionuclide drug conjugates, multispecific antibodies, gene therapies, and cell therapies, among others, are drawing substantial attention. Another area of interest is metabolism drugs, including GLP-1 agonists, which are emerging as a focal point due to their tremendous market potential. Additionally, the adoption of AI in drug discovery continues to excite investors; this technology is revolutionising the industry by drastically reducing the time and cost of developing new treatments," said Yiming Liu.

Big pharma's preferred modality, cancer therapies, are also highly sought after with CG Oncology's successful Nasdaq IPO kicking off the year and the recent IPO filing in Hong Kong by Singapore-based cancer diagnostic RNA technology firm Mirxes Holding being two examples.

"Other companies which are particularly hot or in demand among IPO investors continue to be radiopharmaceuticals, and I wouldn't be surprised if we see a few more companies in this space do a listing in near future. Basically any late-stage assets that are unpartnered, with strong management teams, and focused execution are strong contenders for an IPO. In the US, this is also an election year, which could cause additional volatility to the capital markets in the second half of this year," said Kimberly Ha, CEO & Founder, KKH Advisors, a strategic communications firm that advised this year's first biotech IPO, CG Oncology.

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Australia based Telix pharmaceuticals, a leading player in radiopharmaceuticals recently announced its plans for the US IPO.

Experts have also pointed to diabetes, weight loss, Antibody Drug Conjugates (ADC), CNS, and immunology & inflammation (I&I) among areas attracting investor interest. These companies are well-reflected in the 2024 class of IPOs that have listed so far this year.

"I hope that companies with strong pipelines

and experienced management teams continue to consider IPO as a potential exit strategy, and am fully expecting most companies to pursue a potential dual-track strategy. There are a number of M&A exits in the ADC and radiopharmaceutical space, and those remain attractive areas of interest in oncology for investors. CNS has also made a comeback this year, and investors are increasingly looking at auto-immune diseases as well," said Kimberly.

Will the surge last?

Experts are hopeful that the rebound in IPOs will continue, reflecting renewed investor confidence and a robust pipeline of innovative biotech companies.

"Looking ahead at the biotech IPO landscape over the next few years, we anticipate a dynamic interplay of burgeoning opportunities and significant challenges. The ongoing demand for new and effective medical solutions, coupled with the accelerating use of biotechnological innovations, will continue to create compelling investment opportunities as these technologies approach commercial viability. Conversely, heightened regulatory scrutiny, geopolitical uncertainties, and economic volatility could potentially slow the pace of new IPOs, impact investor sentiment, and affect funding availability. Despite these hurdles, we foresee a vibrant, albeit complex, future for biotech firms aiming to raise funds and go public, characterised by both high-risk and high-reward scenarios," said Yiming Liu.

Saxe echoes the same sentiments, "I've never been more excited for the opportunities that we see in the future of biotech because of the innovation and advancements we're seeing in both science and AI. Companies are now able to leverage technology to improve efficiency and be more strategic in drug development. Hopefully, this translates directly to increased drug-approvals happening in the near future."

One notable trend is biotech brands choosing to list at Nasdaq from around the globe.

"For international companies looking to gain access to US investors, Nasdaq has the single deepest liquidity pool in the world and is supported by highly sophisticated institutional investors," said Saxe.

Chinese companies, especially, are opting for US IPOs after China tightened scrutiny over stock listings.

"Between 2018 and 2023 more than 80 per cent of listings by biotech and pharma companies were on their home market. During this period, Nasdaq was the preferred listing venue overall by both value and volume for biotech and pharma companies, though for Asian-based issuers the Shanghai Stock Exchange STAR Market saw the highest volume of IPOs, followed by Hong Kong. Since 2018, the Hong Kong Stock Exchange has had success in targeting pre-revenue biotech companies with tailored listing rules providing a clear pathway to going public and appealing to the large swathe of biotech companies emerging in Mainland China where there is significant investment in biotech R&D. If market sentiment continues to improve, exchanges in Hong Kong and Mainland China could be well-placed to benefit," said Farlow.

In recent years, following the launch of a new listing chapter to welcome pre-revenue biotech companies, HKEX (The Stock Exchange of Hong Kong Limited) has welcomed many biotech firms, many of which are developing products targeting the fast growing Mainland China market. These companies hail from sectors including healthcare services, pharmaceuticals, biologics and medical devices, and their listings have transformed the DNA of HKEX's markets.

"Since 2018, nearly 100 biotech firms have listed, raising a total of around HK$593 billion (end April 2024). Among them, 64 companies were pre-revenue or pre-revenue biotechnology companies, raising about HK$120.5 billion. The biotech firms are part of many others in the new economy sector space that have listed on HKEX as part of broader listing reforms. More than 300 new-economy companies have listed in Hong Kong since HKEX's reforms in 2018 targeting innovative companies, raising more than HK$948 billion ($122 billion). New economy companies have represented 65 per cent of total IPO funds raised during this period. Looking ahead, HKEX will continue to foster a vibrant and comprehensive ecosystem for new economy companies with ambitious growth plans and capital-raising needs," said an HKEX spokesperson.

The biotech sector has a backlog of companies waiting to go public due to slow markets in recent years. If economic conditions keep improving, there's likely to be strong interest in biotech despite ongoing global tensions.

"There are certainly opportunities ahead for the sector. Subdued markets over the past two years have contributed to a backlog of biotech companies waiting to go public and so we expect the healthcare sector to see strong interest if

Biotech companies got listed on NASDAQ and HKSE in 2024

No	IPO Date	Company Details	Price Range	Stock
1	May 17, 2024	Johnson & Johnson-linked biopharmaceutical company Rapport Therapeutics for an initial public offering with the Securities and Exchange Commission. The Boston-based company is looking to develop small-molecule medicines to treat central nervous system disorders. The company is evaluating potential candidates to treat epilepsy, peripheral neuropathic pain and bipolar disorder.	N/A	NASDAQ
2	April 4, 2024	Contineum Therapeutics, a clinical-stage biopharmaceutical company focused on discovering and developing novel, oral small molecule therapies that target biological pathways associated with specific clinical impairments for the treatment of neuroscience, inflammation and immunology (NI&I) indications	$110 million	NASDAQ
3	March 27, 2024	Boundless Bio, a pioneering clinical-stage oncology company dedicated to exploring extrachromosomal DNA (ecDNA) biology to revolutionize therapies for patients with previously refractory oncogene-amplified cancers, recently unveiled the pricing details of its IPO.	$100 million	NASDAQ
4	March 20, 2024	Qyuns Therapeutics Co. Ltd is a pharmaceuticals company based in China, specializing in the development of clinical-stage biologic antibody drugs for autoimmune and allergic diseases. Qyuns Therapeutics aims to raise HKD 243.33 million (approximately $ 31.10 million) by offering 12.05 million shares.	HKD 243.33 million (approximately $31.10 million)	Hong Kong Stock Exchange
5	February 15, 2024	Chromocell is developing innovative drugs to treat neuropathic and nociceptive pain without risk of addiction.	$6.6 million	NASDAQ
6	February 8, 2024	Metagenomi is a pioneering precision genetic medicines company dedicated to developing curative therapeutics for patients through its proprietary, comprehensive metagenomics-derived toolbox.	$93.75 million	NASDAQ
7	February 8, 2024	Telomir Pharmaceuticals, Inc. is a preclinical-stage pharmaceutical company dedicated to advancing the development and commercialization of TELOMIR-1, an innovative small molecule designed to serve as an oral in situ therapeutic treatment for human stem cells.	$ 7 million	NASDAQ
8	February 7, 2024	Kyverna Therapeutics, Inc., a leading clinical-stage biopharmaceutical company dedicated to pioneering cell therapies for individuals afflicted by autoimmune diseases	$319 million	NASDAQ
9	February 1, 2024	Fractyl Health, a leading metabolic therapeutics company dedicated to advancing innovative solutions for type 2 diabetes (T2D) and obesity treatment,	$110 million	NASDAQ
10	February 1, 2024	Alto Neuroscience is a clinical-stage biopharmaceutical company committed to reshaping psychiatry through the application of neurobiology to craft personalized and highly effective treatment options.	$110 million	NASDAQ
11	January 25, 2024	ArriVent BioPharma is a clinical-stage biopharmaceutical company committed to identifying, developing and commercializing differentiated medicines to meet the unmet medical needs of cancer patients.	$175 million	NASDAQ
12	January 24, 2024	CG Oncology is a late-stage clinical biopharma company dedicated to the development and commercialization of a potential backbone bladder-sparing therapeutic for patients suffering from bladder cancer.	$380 million	NASDAQ

Asian companies in pipeline to be listed in 2024

Sunho Biologics, a Chinese biopharmaceutical company, is dedicated to discovering, developing, and commercialising first-in-class and best-in-class biologics. These biologics regulate the immune microenvironment by directly modulating both the innate and adaptive immune systems. Leveraging a profound understanding of immunology, Sunho has developed various immunotherapies, including immunocytokines, to address cancers and autoimmune diseases. The company is scheduled to list on May 24, in Hong Kong. Sunho Biologics plans to offer 34.15 million primary shares at a price of HKD 13.50 per share, aiming to raise HKD 461.05 million ($58.94 million).

Australian radiopharmaceutical leader **Telix Pharmaceuticals** files for a $100 million US IPO. The company is currently listed on the Australian Securities Exchange. Telix Pharmaceuticals is focused on the development and commercialisation of therapeutic and diagnostic radiopharmaceuticals, with a pipeline of candidates across urologic oncology (prostate and kidney), neuro-oncology (glioma), musculoskeletal oncology (sarcoma), and bone marrow conditioning. Its prostate cancer portfolio includes Illuccix, a commercially available gallium 68-labelled prostate-specific membrane antigen prostate cancer imaging agent. Illuccix was approved by Australia's TGA and the FDA in 2021, and Health Canada in 2022.

Korean biotech **Xcell Therapeutics** is set to launch its IPO in June. Xcell Therapeutics is currently focused on developing proliferation media for various animal cell types, prioritising ethical technologies and tools in its research endeavours. The company aims to emerge as the CDMO leader in regenerative medicine. The company's flagship product, CellCor, is a serum-free chemically defined media composed of over 200 known compounds. Notably, CellCor does not contain any animal or plant-derived components, ensuring purity. According to its regulatory filing earlier this week, Xcell Therapeutics plans to raise at least 10 billion won ($7.4 million) by selling 1.62 million shares through the IPO. The proceeds will be allocated towards enhancing its facilities, operations, and expanding its presence in both local and overseas markets.

In March 2024, China-based **Insilico Medicine,** an AI drug research and development company, resubmitted its listing application to the Hong Kong Stock Exchange.

In December 2023, **XtalPi,** another AI-based drug discovery company in China backed by Tencent, filed for a Hong Kong IPO.

Singapore-based biotech firm **Mirxes,** a pioneer in RNA technology, specialises in developing and commercialising accurate, non-invasive, and affordable blood-based miRNA test kits for early disease detection, including cancer. The company has refiled its draft prospectus for a Hong Kong IPO, aiming to raise at least $100 million ($135.28 million). This announcement follows Mirxes' initial filing to list on the Stock Exchange of Hong Kong (HKEx) in July last year.

PegBio, a Chinese biotech company focused on diabetes, is planning a Hong Kong IPO to support its long-acting GLP-1 treatment for diabetes and obesity.

macroeconomic conditions continue to ease despite ongoing geopolitical headwinds. While venture capital investment, equity capital raising and M&A remain popular with biotech companies, licensing deals between biotech and pharma companies continue to increase, as the appetite for mutually beneficial risk-sharing and cost-sharing increases. Those companies aiming to test the IPO waters will most likely need a persuasive equity story and have entered the clinical trial stage," said Farlow.

Of course, it's impossible not to discuss AI and its impact on the pharma and biotech industries, which will ultimately also influence IPO and biotech activity moving forward.

"It has been impossible to ignore the clamour around AI over the past 12 months and the healthcare space has been no exception. Hopes that AI could drive the speedier development and delivery of new blockbuster drugs and breakthrough therapies could also create a tailwind for a wave of new companies to go public and perhaps provide an off-ramp for PE and other early-stage investors," said Farlow.

This is an interesting time for biotech companies awaiting IPO funding. While there's optimism that the worst may be behind for the biotech sector, uncertainties persist. However, with ongoing developments and potential for revival, the future remains promising for those navigating the IPO journey in the biotech industry. BS

Ayesha Siddiqui

MedTech's sustainability mission

MedTech, not unlike other industries, hurts the environment and must find ways to mitigate this harm. Several leading top medtech companies have announced environmental, social, and governance (ESG) goals. What steps are medtech companies taking to improve sustainability and how much further do they need to go to make a dent in carbon emissions? Let's dig deeper.

Health care accounts for 5 per cent of total global carbon emissions, and medical devices and technology are responsible for a large portion of that, according to Boston Consulting Groups (BCG). Much of this comes from the manufacturing operations and supply chains of medtech companies and their suppliers. At the provider level, MedTech generates tonnes of unrecycled waste through single-use disposable products and packaging.

Stringent regulations

Regulators worldwide are also establishing rules requiring companies to publish standardised ESG information. In Europe, regulations are already in place. In the US, proposed new disclosure requirements for public companies focus on climate-related risks and relevant risk management processes. Another key ESG trend is the mandatory sustainability reporting obligations imposed on companies globally. In the Asia-Pacific region, ESG regulation is accelerating due to the urgent need for greater transparency and tightened definitions for sustainable investment products. The twofold increase in the number of ESG policies in the region over the past five years has led to increased corporate ESG disclosure across most APAC markets, which now align with or exceed those in the US, says Goldman Sachs report.

The Australian government plans to introduce mandatory climate-related financial disclosure requirements, encouraging companies to adopt more environmentally responsible practices. Moreover, stringent waste disposal regulations are on the horizon, with Japan aiming to cut plastic waste by 25 per cent and South Korea by 50 per cent, both by 2030. In light of all this, the medtech industry and the broader healthcare sector are increasingly committing to environmental stewardship.

Cutting carbon footprints

All the top medtech companies, GE HealthCare, Becton Dickinson, Philips, Siemens Medtronic have set ambitious targets to reduce carbon emissions. Medtronic plc announced in 2022 a new ambition to be net zero across its value chain by 2045. Philips is definitely a leading innovator in environmental

technology in the medical device industry. Philips aims to maintain carbon neutrality and use 75 per renewable energy in its operations by 2025. Additionally, the company is committed to reducing CO_2 emissions across its entire value chain in alignment with a 1.5°C global warming scenario. Furthermore, Philips will embed circular practices at its sites and achieve zero waste to landfill by 2025.

Siemens Healthineers is committed to becoming carbon neutral by 2030. Currently on track, the company has already accelerated its efforts. Siemens Healthineers proudly reports a 50 per cent reduction in its CO_2 footprint from operations (without offsetting) since 2019 and is targeting a 90 per cent reduction by 2030. Additionally, Siemens Healthineers has reduced its energy consumption by 9 per cent since fiscal 2021, and 96 per cent of its locations have implemented a water strategy.

Japan based Olympus is committed to becoming carbon neutral by 2030. Since 2021, Olympus has promoted sustainability management by designating an ESG Officer and establishing KPIs in its medium- to long-term business plan.

The APAC region, which represents 18 per cent of the approximately $660 billion global medtech industry and is projected to be the fastest-growing region, is also prioritising ESG initiatives.

Bain & Company and APACMed partnered to survey 120 customers and more than 800 employees on ESG considerations within the medtech industry. Nearly 70 per cent of medtech customers surveyed expect ESG will become a core purchasing criteria.

"Medtech companies are proactively addressing various ESG issues and have launched numerous initiatives. These include energy-efficient manufacturing, supply chain engagement, recycling, waste reduction, remanufacturing, and eco-material adoption."

- Vikram Kapur,
Head of APAC Healthcare & Life Sciences practice, Bain & Company

Among the 874 employees surveyed, 60 per cent reported that their companies have already established ESG ambitions and set specific targets, while 43 per cent confirmed the existence of separate ESG strategies for their companies' suppliers.

Innovative solutions

MedTech companies have announced initiatives to address climate change by cutting carbon emissions, saving water, cutting waste, and incorporating environmentally stable manufacturing into their products.

"Medtech companies are proactively addressing various ESG issues and have launched numerous initiatives. These include energy-efficient manufacturing, supply chain engagement, recycling, waste reduction, remanufacturing, and eco-material adoption. Additionally, medtech firms continue to focus on improving healthcare access, community engagement, diversity, and inclusion. Further acknowledging the importance of ethical business practices and transparency, medtech companies in the APAC region have restructured their standard operating procedures and offered supplementary compliance training for employees," said Vikram Kapur, Head of APAC Healthcare & Life Sciences practice, Bain & Company.

Successful medtech companies emphasise global sustainability while recognising the importance of addressing local market nuances and engaging with local stakeholders. Kapur highlighted a couple of initiatives within the industry. Firstly, a global diagnostic company is collaborating with waste and recycling partners in Australia to ensure the proper disposal and management of end-of-life instruments. Secondly, another global medical devices company has partnered with the Japan Containers and Packaging Recycling Association for waste recycling efforts. In 2021 alone, this company recycled 31 tonnes of paper and 207 tonnes of plastic packaging materials, thanks to contracted recycling firms associated with the association. Reprocessing single-use medical devices extends their lifespan, reduces costs, and minimises waste. According to Cardinal Health's latest ESG Report, its Sustainable Technologies Division, which serves over 2,000 U.S. hospitals and ambulatory service centres, collected 18.3 million single-use devices (SUDs) in fiscal 2022, diverting over 5.6 million pounds of waste from landfills. In 2023, Stryker's Sustainability Solutions enabled their customers to divert more than 5 million pounds of waste from landfills through reprocessing programs.

A research paper from 2021 focusing on the remanufacturing of medical catheters emphasised that heightened recycling and remanufacturing efforts could result in CO_2 savings of up to 50 per cent. This significant reduction is mainly attributed to the decreased production of new plastic.

Despite this, medtech companies are lagging in terms of their sustainability progress when compared to other sectors in the life sciences and healthcare industry. While 19 of the top 20 medtech companies have set carbon reduction targets, only 40 per cent of those have included consumer and supplier emissions in this carbon reduction target. To put this into perspective, 9 of the top 10 pharmaceutical companies have included consumer and supplier carbon emissions in their reduction targets, and seven have full-scope net-zero goals.

"At the same time, implementing sustainability-focused changes presents challenges, requiring a shift in organisational culture and approaches. Sustainability must be incorporated into every facet of the business with flexible scenarios and incremental steps over rigid plans. Investments in new capabilities and skill sets, as well as a focus on scalability and adaptability, are crucial for achieving a capability shift. Furthermore, collaborating with unexpected allies, such as renewable energy providers, government agencies, educational institutions, and environmental nongovernmental organisations, is vital for effectively driving systemic change," said Kapur.

While the medtech industry has taken initiatives, there is still much to be done to significantly reduce carbon emissions. Despite setting ambitious targets and making progress, more efforts are needed to make a substantial impact. Embracing sustainability can also contribute to cost-cutting measures. BCG report estimated that reducing emissions by 20 - 30 per cent could result in net cost savings. Therefore, it is imperative for the industry to take all necessary steps to become more sustainable and maintain a healthy ecosystem. BS

Ayesha Siddiqui

Taiwan's Pursuit of Precision Med Excellence Intensifies

The Taiwanese government, bullish about the far-reaching benefits of precision medicine, launched the Taiwan Precision Health Strategy Development Programme in May 2020. This initiative aims to build a Taiwan Bio-Medical Data Commons, develop precision disease prevention, diagnosis, and treatment systems, create high-precision pandemic prevention products, and expand international biomedical business opportunities. Let's take a closer look at Taiwan's advancements in precision medicine.

The Taiwan National Development Council identified the precision health industry as one of its six strategic industry priorities for its 2030 strategy. The Taiwan Precision Health Initiative (TPHI) covers three key areas: precision medicine, regenerative health, and digital health innovation.

One of the initiatives in this regard is the Taiwan Precision Medicine Initiative (TPMI) hosted by Academic Sinica and in alliance with 16 partner hospitals across the country, which has the ambition to obtain genetic profiles of 1 million patients from medical centres across Taiwan. Many healthcare databases rely heavily on data from Caucasian patients and research participants. However, predictions generated from such data may not always be accurate when applied to patients from different ethnic backgrounds. Recognising this limitation, the Taiwan Precision Medicine Initiative aims to use specific data from the Han Chinese population to enhance patient care optimisation in Taiwan.

The Precision Medicine Industry Association of Taiwan (PMIA) unveiled the '2023 Precision Medicine Industry Policy White Paper.' PMIA has proposed five policies to be recommended by the government and industry based on the principles of precision medicine.

"The Taiwan government is working hard to promote it, and relevant legislation is being discussed in the Legislative Yuan. We hope that

Seizing Opportunities in the Asia Pacific Market

With the ageing population in the Asia Pacific, as well as the rise of emerging economies, such as China and Southeast Asia, demand for basic healthcare, home care, health promotion, and medications has significantly increased, driving the rapid growth of Asia's biopharmaceuticals market. Foreign companies can leverage Taiwan's biopharmaceutical foundation, geographical proximity, international connections, preferential taxes, and industry R&D subsidies. These factors recommend Taiwan as a regional HQ, R&D, or production base.

In response to steady innovation in the biopharmaceuticals industry, Taiwan has continued to amend its regulations and standards related to medical devices, e.g., the Medical Devices Act promulgated in 2020, which incorporates the concept of "design" into the medical devices manufacturing industry and in the management of related repair industries. The Regulations Governing the Application or Use of Specific Medical Techniques or Examinations, or Medical Devices was passed in 2021, lifting restrictions on cell therapy and bone marrow mesenchymal stem cell transplant. This made Taiwan the next country after Japan to allow the use of immune cells to treat various cancers, which will help foreign companies seize opportunities in advanced medicine in the Asia Pacific market.

The pandemic has accelerated the transition of the healthcare industry in recent years, in which smart medicine is a key field to both the biotechnology and technologies industries. According to statistics, the global smart medical device market will grow to $70.1 billion at the end of 2028, and the software as a medical device (SaMD) market has been at the centre of attention. Taiwanese technology companies are investing in smart medical devices, AI imaging systems, or smart medical platform services to prepare for the smart medicine market.

Source: InvesTaiwan

Precision diagnostics companies in Taiwan

ACT Genomics, a genomics company specialising in precision oncology which Prenetics acquired in 2022. Using advanced next-generation sequencing (NGS) platforms and sophisticated bioinformatics, it translates genetic data into actionable insights for clinical and research purposes. Its diagnostic and monitoring tools are focused on treatment selection. By integrating genomic analysis into clinical practice, it enables personalised medicine approaches that consider each patient's unique genetic profile, allowing for more targeted and effective treatments tailored to individual needs.

CancerFree Biotech focuses on personalised cancer treatment. Specialising in personalised analysis through circulating tumour cell culture, they create organoid systems aiding doctors and patients in developing optimal treatment strategies. This approach reduces ineffective drug use by utilising bionic tumour organoid culture systems.

Advanced Biomed specialises in the development of microfluidic testing equipment for early cancer screening. Utilising a microfluidic technology platform, the company has created a range of medical testing equipment and related products aimed at early screening, detection, diagnosis, and staging, as well as treatment of cancer. Their technology focuses on detecting circulating tumour cells and related tumour markers in blood samples, capturing single circulating tumour cells, and sorting and determining single cells. It filed for a US IPO in 2023.

QuarkBio operates under the belief that the one-size-fits-all medical approach is obsolete and that emerging needs for precision healthcare solutions must be met without imposing financial burdens on patients. The company focuses on developing innovative tests, drawing on the domain knowledge of its in-house staff scientists or external collaborators. QuarkBio supports partners by co-developing tests on the NextAmp Analysis System, providing ready-to-use products for service to end-users.

Industry overview

According to the 2023 Biotechnology Industry in Taiwan report by the Ministry of Economic Affairs (MOEA), Taiwan's biotechnology industry mainly includes five major sectors: pharmaceuticals, medical devices, applied biotechnology, health & welfare and digital health. Total revenue in 2022 was NT$700.9 billion. The turnover of the health & welfare industry increased by 6.6 per cent compared to the previous year to NT$226.8 billion, followed by the applied biotechnology industry by 6.44 per cent to NT$133.9 billion, the pharmaceuticals industry by approximately 4.80 per cent to NT$96.1 billion, and the digital health industry by 10.09 per cent to NT$50.2 billion. Only the medical device industry's turnover fell to NT$193.9 billion in 2022, a decrease of approximately 17.94 per cent, mainly due to the global COVID-19 epidemic. During this period, working from home became the mainstream, which also drove the sales of home health care equipment and continued into 2021. However, as the epidemic eased and life returned to normal, the sales of home health care equipment slowed down. In addition, the base period in 2021 was relatively high, which in turn caused a large decline in the total revenue of the medical devices industry.

Source: InvesTaiwan

the law will be passed this year," said Lisa Juang, Director, Finance and Administration at Taiwan Bio Therapeutics. It is a one-stop, total solution cell therapy CDMO focusing on accelerating the translation of early-stage cell therapies to clinical products.

The country has taken several initiatives and partnerships to advance precision medicines in the country. The latest development is that next-generation sequencing (NGS) tests for precision cancer therapy might be covered by the National Health Insurance (NHI). PMIA has also proposed incorporating NGS testing into the NHI to align with global policy trends, as outlined in its white paper.

Major pharmaceutical companies like AstraZeneca, Roche, and Merck are increasingly turning to Taiwan to leverage its robust data and computing capabilities for precision medicines.

Taiwan's precision diagnostics firm, SOFIVA GENOMICS signed a Memorandum of Understanding (MoU) with global, science-led biopharmaceutical company AstraZeneca to promote awareness and improve access to Homologous Repair Deficiency (HRD) testing in Asia. Roche partnered with Taiwan's National Health Research Institutes, committing to support the government's creation of a clinico-genomic database of patient outcomes, to be used for follow-up analysis and to provide evidence supporting regulatory and

reimbursement decisions.

Merck, a vibrant science and technology company, announced the signing of a MoU with the National Health Research Institute (NHRI) to jointly dedicate their capabilities in R&D and technology development, to strengthen the National Precision Medicine Programme targeting cancer testing and treatment, and to collaborate on enabling the 2030 Precision Health System to safeguard the wellbeing of Taiwanese citizen.

Pioneering precision diagnostics

Molecular diagnosis is a cornerstone of precision medicine, enabling the prediction of treatment effects through a comprehensive analysis of a patient's condition. This approach allows for optimal drug selection, significantly reducing the time and cost of recovery. As precision medicine becomes an international trend, testing plays a critical role in its implementation. Targeted therapies and immunotherapies for cancer often require the identification of genetic mutations through biomarker testing to pinpoint treatment targets.

Taiwan is a prominent player in diagnostics and has recently unveiled significant advancements in cancer precision diagnostics.

Lung cancer continues to be the leading cause of cancer-related deaths both globally and in Taiwan. To combat lung cancer and improve survival rates, Taiwan has taken a groundbreaking step by introducing the 'Taiwan National Lung Cancer Early Detection Program.' This programme aims to detect lung cancer early through low-dose computed tomography (LDCT) lung cancer screening, targeting individuals with a family history of lung cancer and those with a history of heavy smoking.

Pancreatic cancer affects 500,000 people globally each year, with over 3,000 cases in Taiwan annually. It is difficult to diagnose early due to its inconspicuous initial symptoms, so most patients are diagnosed at advanced stages. National Taiwan University Hospital (NTUH) said its pancreatic cancer team has developed an artificial intelligence (AI)-assisted model for interpreting computed tomography (CT) scans, which can detect pancreatic cancer more accurately and at earlier stages. The AI-assisted diagnosis system has obtained a Food and Drug Administration (FDA) medical device licence, a 'breakthrough device' designation by the US FDA, as well as several patents in Taiwan and the US.

AI is also revolutionising heart attack diagnosis and treatment. In a study at a Taiwanese hospital, AI technology combined with electrocardiogram testing reduced the time to diagnose and transfer heart attack patients to the cardiac catheterisation laboratory by about 10 minutes.

All these efforts have positioned Taiwan as a key player in the international precision medicine landscape, driving innovation and enhancing the well-being of its citizens and the world at large. BS

Ayesha Siddiqui

Success Stories

Development of Clinical Trials: GSK and Novartis have come to Taiwan to set up clinical trial research centres for investigational new drugs. Merck, Pfizer, Johnson & Johnson, and MSD have also established clinical trials or related collaborative mechanisms with medical or R&D institutions in Taiwan, which help them conduct international/cross-regional clinical trials.

Creating Connections to Consolidate Capacity: GyroGear Ltd., a UK-based neuromuscular medical device company, announced a partnership with Foxconn in February 2021. Foxconn will assume responsibility for the manufacture of the wearable medical device "GyroGlove" in Asia. The GyroGlove is the world's first and only wearable medical device that adopts cutting-edge aerospace technology and satellite-grade mechanical gyroscopes to mechanically control trembling hands. This wearable can help persons with Parkinson's Disease and Essential Tremor to live independently.

Pursuit of Joint R&D Work and Technical Cooperation: Roche (Switzerland), Merck (Germany), and Chugai Pharmaceutical (Japan) formed a pharmaceutical alliance and signed an agreement with Taiwan's National Health Research Institutes (NHRI) and the National Biobank Consortium of Taiwan (NBCT) in March 2021 to collaborate in developing a platform for the use of Taiwanese biobanks for the development of precision treatments for cancers such as personalised cancer treatments.

Source: InvesTaiwan

“India is making strides in developing its indigenous population genomics dataset and analysing its microbiome”

Prof. Ajay Sood,
Principal Scientific Advisor to the Government of India

With an aim to support and nurture the unique requirements of deep tech startups in India, the government of India has released a draft policy called the National Deep Tech Startup Policy (NDTSP) in July 2023. The draft policy is strategically formulated to ‘stimulate innovation, spur economic growth, and promote societal development’ by effectively utilizing deep tech research-driven innovations. India's deep tech vision encompasses four key pillars: securing India's economic future, progressing towards a knowledge-driven economy, bolstering national capability and sovereignty through the Atmanirbhar Bharat imperative, and encouraging ethical innovation. The policy will aim to provide a comprehensive framework to address the challenges faced by deep tech startups and provide definitive policy interventions to enhance the ecosystem. Prof. Ajay Sood, Principal Scientific Advisor to the Government of India, in an interaction with BioSpectrum, spoke about the tools needed to shape India’s deep tech startup landscape, and the role NSTDP will play.

Can developing the niche deep tech sector in India’s biotechnology landscape contribute to boosting domestic production of cutting-edge technologies, novel drugs, and therapies?

Quick answer, Yes. Over the past decade, India’s biotech sector has experienced significant growth in various aspects, including capacity, capabilities, and market demand. This growth is evident in the surge of biotech startups, which have increased from 50 in 2012 to over 6000 today. The bio-economy has added $10 billion over the past decade and is projected to exceed $100 billion by 2025. India’s expanding expertise in areas such as digital public infrastructure, advanced data analytics and ongoing technology mission programs such as on AI and Quantum will further bolster the capabilities of the biotech sector. India’s advanced digital capabilities can be harnessed to develop new drugs and therapies.

Moreover, India is making strides in developing its indigenous population genomics dataset and analysing its microbiome, which will enhance precision medicine/healthcare approaches.

Currently, India imports about 80 per cent of its medical hardware and devices. However, policy changes and the development of deep tech sectors are expected to reduce imports and stimulate domestic innovations and production.

How will the government look to boost the deep tech startup ecosystem, especially in the life sciences and pharma domains?

According to the Department for Promotion of Industry and Internal Trade (DPIIT) data, India is home to more than 1,17,000 startups in 2023, with nearly 10,000 of them being in the deep tech sector. The proposed National Deep Tech Startup Policy (currently under the final stage of approval) is aimed at encouraging the integration of emerging technologies and advancing societal growth through the effective use of research-driven deep tech innovations.

Deep tech startups are distinguished by their extended gestation period compared to other startups. Among many key priorities unique to deep tech, the proposed national deep tech startup policy aims to (a) facilitate access to a variety of capital sources, (b) establish and share facilities for product prototyping and validation, (c) encourage the public and private sectors to adopt indigenous deep technologies, and (d) create a favorable regulatory environment for innovation to flourish.

NDTSP aims to also address the diverse challenges encountered by deep tech startups across various sectors. These challenges differ in magnitude depending on the sector, necessitating customised interventions. Acknowledging the distinct risks and opportunities within the life sciences and pharmaceutical domains, a tailored approach

Growth and sustenance of INDIA'S DEEP TECH SECTOR

1. Capacity Building: Enhance the skills of the current generation and educate young minds by incorporating relevant curricula in educational institutions. Provide opportunities for the existing workforce to upgrade their skills through professional development courses. Capacity building and attracting and retaining talented human resource by - introducing specialised courses, bridging industry academia gap through guest lectures, mentorship programs, and fostering collaboration between international and Indian universities.

2. Boosting Research and Development: Promote and financially support research in emerging fields, also in basic research in addition and applied and translational research activities. This needs to be achieved through a combination of government grants and investments from the private sector.

Currently, India's R&D is primarily driven by the government. Despite improvements in our Global Innovation Index (GII) ranking from 81 in 2014 to 40 in 2023, data from 2020 shows that our global share in total patents granted is only 2 per cent. Increased participation from the industry in setting goals, providing funding, etc., will enhance the R&D ecosystem and the inclusion of emerging technology. A case in point is the space sector, where modifications are aimed at increasing India's share in the global space economy from the current 2 to 10 per cent in the near future. The establishment of IN-SPACe introduces the necessary regulatory measures for the private sector's involvement in space activities.

Nurturing the Research, Development & Innovation ecosystem in the country should be one of the overarching priorities to build a stronger foundation for the future preparedness in the emerging domains of science and technology. It is also essential to synergize collaborative research between diverse stakeholders including academia, industry, central and state government.

3. Regulatory Framework and Standards: It is crucial to put in place conducive policies and regulations that encourage innovation while safeguarding society from potential risks. For example, rising needs and concerns w.r.t data privacy for AI applications in healthcare. In case of emerging and disruptive technologies, setting standards is important to meaningfully structure interactions among the stakeholders. To provide a safe environment for testing functionality and potential risks regulatory sandboxes are important. While setting standards for emerging domains of science and technology in India, involvement of international players should be based on sectoral sensitivities and strategic implications.

4. Global Collaboration: Science and Technology (S&T) pursuits are global endeavors and do not operate in isolation. By fostering collaboration with international partners, India can leverage expertise in adopting, developing, and scaling technologies. This will pave the way for successful integration of emerging technologies into the R&D landscape, ensuring India's future competitiveness.

5. Public Engagement: Engaging the public in discussions about the future of science and technology can help ensure that these developments align with societal values and needs.

6. Stronger Intellectual Property Rights (IPR) Regime: To foster a climate of trust and encourage innovation by ensuring creators have their work protected internationally it is important to actively engage in discussions within global IP conventions and strengthen cross-border IP protection.

Addressing the patenting landscape for emerging technologies and ensuring clear guidelines for these emerging fields can encourage responsible innovation and attract investment in these critical sectors.

is essential. Rather than adopting a one-size-fits-all strategy, sector-specific strategies need to be deployed by concerned agencies to foster innovation in these crucial domains.

When will the draft NDTSP policy become a reality?

The current draft version of the NDTSP is truly a stakeholder-driven document incorporating inputs came through different rounds of consultations and public feedback mechanism. At present, the policy is going through its final stage of inter-ministerial consultations leading up to the cabinet approval process, coordinated by the DPIIT. We expect to have this policy enacted as soon as possible. BS

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"There's a growing focus on developing novel ADCs tailored to address unmet medical needs"

« **Dr Jingsong Wang,** Chairman, Nona Biosciences, USA

Nona Biosciences, a subsidiary of Hong Kong-listed Harbour BioMed is an emerging leader in Antibody-drug conjugates (ADCs). Nona excels in delivering comprehensive solutions from 'Idea to IND.' Their use of Harbour Mice technology and a team of seasoned experts enable them to offer integrated services in antibody discovery, from antigen preparation to pharmacological evaluation. Nona has forged partnerships with big pharma firms such as Pfizer and Moderna among others. Dr Jingsong Wang, Chairman of Nona Biosciences, shares more about the company, its plans and Asia's ADC landscape. ***Edited excerpts:***

Can you provide an overview of Nona Biosciences' integrated antibody discovery services?

Nona Biosciences is a global leading technology platform company committed to cutting-edge technology innovation and providing a total solution from 'Idea to IND' (I to I), ranging from target validation and antibody discovery through preclinical research.

The integrated antibody discovery services range from antigen preparation, animal immunisation, highly robust antibody screening, to antibody lead generation and engineering, developability assessment and pharmacological evaluation, leveraging advantages of Harbour Mice technology and the experienced therapeutic antibody discovery team.

Harbour Mice generates fully human monoclonal antibodies in a traditional two heavy and two light chain (H2L2) format, and a heavy chain only (HCAb) format. Integrating Harbour Mice with highly robust antibody screening platforms, Nona Biosciences is focused on driving global inventions of transformative next-generation drugs.

Can you share the successful collaborations that you have undertaken and how these have contributed to the advancement of therapeutic antibody discovery?

One notable instance is the licensing and collaboration agreement with Moderna, a global pioneer in mRNA therapeutics. The strategic collaboration focuses on discovering and developing nucleic acid-based immunotherapies using our proprietary heavy chain only antibody discovery platform (HCAb). Under the agreement, we will receive an upfront payment, and potential milestone payments based on pending achievement of certain regulatory, development, and sales milestones, and tiered royalties. The collaboration marks a significant milestone in our business development, affirming the potential of our HCAb platform and innovative capabilities.

Another pivotal collaboration is the licensing agreement with Pfizer for HBM9033, an mesothelin-targeted ADC generated from Nona's Harbour Mice and integrated ADC platforms, with the aggregate amount of $53 million upfront and near-term payments, up to approximately $1.05 billion in milestone payments and tiered royalties ranging from high single digits to high teens. This partnership with Pfizer underscores our robust capabilities and expertise in ADC drug discovery, further enhancing our global network of collaborations, thereby amplifying the scientific and commercial value of our technology platforms.

What are the key challenges faced in antibody discovery and engineering, and how do you address these challenges within your service offerings?

Antibody discovery and engineering encounter several significant challenges, including:

Humanisation to reduce the risk of immunogenicity; The flexibility of selecting appropriate formats based on the intended application and desired properties; Addressing chain mismatch in bispecific antibody development and Screening to identify antibodies with the desired properties.

Our two proprietary transgenic mouse platforms can generate both conventional, as well as the next-generation biologics that are fully human, affinity matured with excellent solubility and developability.

The HCAb platform can generate unique 'heavy chain only' antibodies that are approximately half the size of a typical Immunoglobulin G (IgG). These antibodies possess IgG-like pharmacokinetic properties and Fc-domain functions, obviating the need for additional engineering or humanisation.

Moreover, due to the absence of light chains, HCAb naturally overcomes the challenge of light chain mispairing in bispecific antibody contexts. Consequently, leveraging HCAb and its derived single domain antibody (sdAb) enables the construction of bispecific or multispecific antibodies with smaller molecular weights, fewer polypeptide chains, and simpler structures.

To expedite antibody discovery, we have developed state-of-the-art high-throughput screening platforms, leveraging optimised murine plasma cell enrichment methods, robust and reliable in-chip assay development process, highly efficient single cell sequencing technology, and high-throughput recombinant antibody screening techniques. The single B cell screening (SBC) platform greatly shortens the workflow from months to days. Besides, we are highly motivated to embrace new technologies, such as AI, to further increase screening efficiency and sequence diversity.

Antibody-drug conjugates (ADCs) are gaining prominence as therapeutic modalities globally. How would you describe the current landscape of ADC development in the Asia Pacific region?

The landscape of ADC development in the APAC region is marked by increasing research and collaboration among pharmaceutical companies, academic institutions, and biotech firms. Nearly one-third of global ongoing trials in ADC are taking place in the APAC region.

There is a growing focus on developing novel ADCs tailored to address unmet medical needs, particularly in oncology, with the global market value predicted to reach $22 billion by 2030. Apart from oncology, ADCs are anticipated to address the needs of ageing populations.

The landscape of ADC development in the APAC region is marked by increasing research and collaboration among pharmaceutical companies, academic institutions, and biotech firms. Nearly one-third of global ongoing trials in ADC are taking place in the APAC region. There is a growing focus on developing novel ADCs tailored to address unmet medical needs, particularly in oncology, with the global market value predicted to reach $22 billion by 2030. Apart from oncology, ADCs are anticipated to address the needs of ageing populations.

Moreover, there are growing R&D activities for novel therapies in APAC. Companies in countries such as China, Japan, and South Korea are actively engaged in ADC research and clinical trials, aiming to bring innovative therapies to the market. Regulatory agencies in the region are also adapting to address the unique challenges and opportunities presented by ADCs, fostering an environment conducive to their development and commercialisation.

Additionally, companies are exploring new therapeutic targets and investing in cutting-edge technologies like AI-powered antibody technology. In conclusion, the APAC region is positioned to play a significant role in advancing ADC technology and expanding treatment options for patients.

What are your future plans or developments?

Nona Biosciences is a global leading technology platform company. As a technology platform company, Nona has established HCAb PLUS platform based on Harbour Mice HCAb platform, enabling the generation of multiple novel therapeutic antibody modalities, including single-domain antibodies, bi- and multi-specific antibodies, ADCs, CAR-Ts, and mRNAs, thereby expanding the frontiers of our ability to drive global innovation. In the future, we will continue to explore next-generation technology innovation opportunities, and to expand and enhance the technology toolbox available for our partners around the world. BS

Ayesha Siddiqui

"The rise of the middle class in Southeast Asia is driving the adoption of NGS"

« **Walt Ling,**
CEO,
ACT Genomics,
Taiwan

Taiwan-based ACT Genomics, a genomics company specialising in precision oncology with operations in Hong Kong, Taiwan, Japan, Singapore, Thailand, and the UK. The firm is looking to expand to other markets. In January 2023, ACT received the United States Food and Drug Administration (US FDA) clearance for ACTOnco, making it the first Asia-based company to receive clearance for a comprehensive genomic profiling test for all solid tumours. Walt Ling, CEO, ACT Genomics, shares with BioSpectrum Asia about the company mission, how its acquisitions by Prenetics have changed the operational dynamics, and Asia's cancer diagnosis landscape. ***Edited excerpts:***

Can you share the solutions that ACT Genomics provides?

ACT Genomics is a leading biotech company that focuses on cancer genomics. Using advanced next-generation sequencing (NGS) platforms and sophisticated bioinformatics, we translate genetic data into actionable insights for clinical and research purposes. Our diagnostic and monitoring tools are focused on treatment selection. By integrating genomic analysis into clinical practice, we enable personalised medicine approaches that consider each patient's unique genetic profile, allowing for more targeted and effective treatments tailored to individual needs.

ACT Genomics has established collaborations with a wide range of stakeholders, including clinical professionals, pharmaceutical companies, and research institutes. How do these partnerships contribute to the company's growth and innovation strategy?

Battling cancer is a tough journey, and understanding what cancer patients go through is a top priority for us. This philosophy underpins our commitment to building an ecosystem of partners within the healthcare industry. We can better develop and deliver our tests more effectively and unlock the full potential of genetic medicine for every patient.

Collaborations with clinicians in leading hospitals in the region (such as National Taiwan University Hospital, Chang Gung Memorial Hospital, Bumrungrad Hospital, Hong Kong Sanatorium Hospital and many more), global pharmaceutical companies, and partnerships with central labs in Japan fuel our growth and innovation engine in multiple ways. These partnerships open doors to new markets and broader patient pools, as established healthcare providers and research institutions can integrate our tests into their practices. Working with these leading organisations also strengthens our reputation and scientific credibility, attracting new customers and partners.

How does the company navigate regulatory and cultural differences across various markets in APAC to ensure compliance and effective delivery of its services?

We strongly emphasise compliance efforts across all markets we operate in, ensuring the integrity of our premium solutions through robust quality systems. Being the pioneering Asia-based genomics company to secure FDA 510(k) clearance, and with our Taiwan laboratory holding CAP accreditation, and Taiwan LDTs certification, we maintain exceptionally high standards.

Moreover, as we expand into new markets, we ingrain in all employees the importance of upholding

quality and integrity, which are foundational to our core values. We conduct thorough regulatory analyses to grasp the specific requirements, laws, and regulations governing healthcare services and data privacy. Collaborating closely with legal experts and regulatory affairs professionals, we ensure compliance with local regulations and obtain necessary approvals. We recruit local talent to operationalise our processes and services in alignment with local regulatory requirements. We also forge local partnerships with key stakeholders to adhere to regulatory standards.

How does the recent acquisition by Prenetics reshape ACT Genomics' operational strategies and objectives? Specifically, could you outline any anticipated changes in areas such as product development, market expansion, partnerships, or organisational structure?

We continue to strive to work with our partners to develop cutting-edge cancer genomic profiling to deliver targeted therapies for a range of cancer diseases.

What trends do you foresee shaping the future of cancer diagnostics and treatment in Asia Pacific?

Cancer diagnosis and treatment have come a long way from the days of just X-rays, and imaging. The adoption rate of NGS in clinical practice has steadily increased over the past decade, driven by technological advancements, cost reductions, and the growing recognition of its utility in various applications, including cancer diagnosis, personalised medicine, and genomic research.

In the Asia Pacific region, the rise of the middle class in Southeast Asia, such as Indonesia, Vietnam, and Thailand, is driving the adoption of NGS. Residents of these countries are prioritising their health and seeking more advanced medical care. NGS offers a deeper understanding of diseases, leading to more accurate diagnoses and personalised treatment plans. Due to the Internet, the growing middle-class populace has greater awareness of advanced medical technologies such as NGS.

Also, there is a growing understanding of preventive healthcare measures and how NGS can be used for early cancer detection and personalised risk assessment for various diseases. The increase in volume will continue to drive down pricing, making NGS more accessible. This trend is expected to continue where we see NGS as a more mainstream diagnostic tool for cancer.

We must address genomic data sovereignty strategically and proactively to navigate regulatory complexities, ensure compliance with local laws, safeguard data privacy, and build and maintain stakeholder trust. Governments in this region are at various stages of developing and implementing laws and regulations related to genomic data. Markets such as Singapore, Japan, Australia, New Zealand and South Korea have more advanced laws regarding genomic data privacy, informed consent and research ethics, while other countries in the region are at the earlier stages of developing regulations surrounding the use of genomic data.

Looking ahead, what are the primary strategic priorities and goals for ACT Genomics in the next few years?

We prioritise sustaining our presence in the Asian markets, particularly focusing on Thailand, Hong Kong and Taiwan.

We aim to diversify our high-quality, best-of-breed product portfolio to better suit each market's needs. For instance, we anticipate that our small to medium-sized panels at accessible price points will better suit specific emerging markets in Southeast Asia. In conjunction with our market expansion in Southeast Asia, we intend to penetrate the US, European, and Japanese markets by leveraging our top-quality and innovative assays. Such as RNA-based NGS testing for fusion genes and complex genomic signatures. By raising awareness of our brand, fostering key opinion leader (KOL) relationships, and strategically publishing relevant research, we can effectively target specific market segments. BS

Ayesha Siddiqui

“The dialogue surrounding pharmaceutical gowning is experiencing significant transformation in 2024 & beyond”

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Manas Kumar,
Global Director Pharma & Director Strategic Marketing and Business Development- APAC, Lindström Oy, India

Finland-based Lindström, a leading global provider of workwear, cleanroom workwear, and mat services, is making significant strides in its expansion efforts, particularly in key markets such as India, China, Vietnam, and Turkey. These expansions are strategically aimed at serving a diverse range of industries, including biopharma, pharmaceuticals, and the food sector. In a recent interview with BioSpectrum, Manas Kumar, Global Director Pharma & Director Strategic Marketing and Business Development- APAC at Lindström Oy, India sheds light on the company's ambitious growth plans and its commitment to sustainability. ***Edited excerpts:***

Lindström has recently opened a larger cleanroom facility at Hyderabad in India. How do you plan to increase your presence in the Indian workwear services market with respect to the pharma and healthcare industry?

We're thrilled about our leadership in workwear and cleanroom services, especially in Hyderabad, India's bustling pharma hub. Our recent moves, like opening our second top-notch cleanroom facility and relocating to a bigger, modern workwear spot in Telangana, show just how committed we are to this vibrant region. It's all part of our big plans to solidify our place as forerunner in the global textile services sector. We're talking about investing in cutting-edge facilities and expanding our capacity to meet the growing needs of industries like biopharma, pharma, and more.

Our new facility is a significant milestone in our growth journey. Doubling our workwear capacity in Telangana means we're ready to tackle the rising demand for top-quality workwear in the biopharma and pharma sectors.

Speaking of numbers, we've got 11 workwear and 2 cleanroom units across India, managing a whopping 2.5 million garments in circulation thanks to our amazing team of over 900 employees. This feeds into our global portfolio of 21 million textiles, showcasing our extensive reach and capabilities in 24 countries across Europe and Asia.

But it's not just about the numbers or the facilities; it's about delivering exceptional services and tailored solutions to our clients in biopharma and pharma. Our Cleanroom Service journey in India started in Pune in 2017, and since then, we've been partnering with big names in the Bio pharmaceutical world across Maharashtra, Madhya Pradesh, Gujarat, and even Himachal Pradesh.

We're all about keeping things hygienic, compliant, and efficient, which is why our focus on regulatory standards, operational efficiency, and customer satisfaction drives our success in these critical industries. Our latest facility in Hyderabad is equipped with top-notch cleanroom tech, perfect for industries like biotech and pharma where precision is key. Our focus on maintaining stringent hygiene and compliance standards, operational efficiency, and customer satisfaction continues to drive our success in these critical industries.

Could you please share some details about your expansion plans in the Asian market, catering to the pharma sector there?

Lindström has solidified its position as a market leader in providing cleanroom services to pharmaceutical companies in both India and China, recognising the pivotal role these nations play as the pharmacy of the world. This commitment underscores our dedication to delivering compliant services and sustainable solutions in the rapidly growing pharmaceutical industry.

In China, Lindström's recent expansion includes the inauguration of a new state-of-the-art facility in Tianjin, the fourth Cleanroom service centre added to our existing locations in Beijing, Shanghai, and Guangzhou. These centres are strategically placed to meet the evolving needs of industries requiring cleanroom solutions, particularly in the pharmaceuticals and semiconductor industry.

The increasing demand for sustainable workwear solutions that adhere to international hygiene and regulatory standards is a key driver in China, reflecting the commitment of both domestic and

international companies to ambitious sustainability goals. Beyond China and India, Lindström's expansion efforts also extend to South Korea. In 2023, we opened a state-of-the-art compliant workwear unit in Pyeongtaek, doubling our production capacity to cater to the diverse needs of customers across industries such as pharmaceuticals, food processing, and electronics. This expansion demonstrates our ongoing commitment to providing top-notch solutions and services to clients across Asia and beyond.

How is Lindström investing into technology to provide the critical workwear services to the pharma industry in Asia?

Asia's pharmaceutical market, representing roughly a fifth of the global industry, is a dynamic landscape with distinct demands in India and China. India focuses on generics and cost-efficient solutions, while China's emphasis is on high-value biotech and biosimilars with stringent requirements. In this competitive environment, outsourcing services have become crucial, allowing pharma companies to concentrate on innovation and core functions.

Traditionally, many companies managed laundry in-house, but today's pharmaceutical facilities often exclude laundry facilities from their designs. This shift reflects the industry's evolving focus on core activity and outsourcing non core to improve efficiency and compliance. Garments are as vital as raw materials in the manufacturing process; any interruption can halt operations. Compliance and data integrity are paramount concerns for companies considering outsourcing, given the industry's strict regulations.

At Lindström, we leverage smart digital technology to provide comprehensive item-level audit trails. Our RFID-tagged garments enable precise tracking of usage and wash-wear cycles, ensuring compliance and data accuracy. This technology-driven approach aligns with the industry's evolving needs, optimising efficiency and transparency throughout the garment lifecycle. Beyond workwear, Lindström offers rental services for reusable goggles and mops tailored to cleanroom requirements. Our use of RFID technology enhances traceability, monitoring each item's journey from laundering to usage for optimal cleanliness and efficiency.

The narrative around pharmaceutical uniforms is changing in 2024 and beyond. How is Lindström setting its sustainability goals in this context?

As we journey into 2024 and beyond, the dialogue surrounding pharmaceutical gowning is experiencing a significant transformation, with a strong emphasis on reusability and recycling. At Lindström, we recognise the pivotal role that sustainable practices play in aiding the pharmaceutical industry's efforts to reduce its carbon footprint. By prioritising reusability and recycling in pharmaceutical gowning, we can significantly minimise waste and environmental impact.

Our sustainability objectives are deeply rooted in our commitment to environmental stewardship, resource efficiency, and ongoing innovation. We have set ambitious targets aligned with global climate goals, aiming to halve greenhouse gas emissions by 2030 and achieve net-zero emissions by 2050 across our entire value chain. This commitment drives us to increase the utilisation of recycled and bio-based materials in our textiles, transition to sustainable energy sources in our service centres, and adopt eco-friendly alternatives in customer deliveries.

A key strategy in our sustainability approach is the promotion of circular economy principles. This entails designing garments for durability, implementing efficient laundering processes, and spearheading recycling initiatives. By prioritising longevity and reducing the need for frequent replacements, we contribute to a more sustainable supply chain and lessen environmental impact.

Our smart digital solutions, including RFID tagging and item-level audit trails, play a pivotal role in enhancing sustainability. These technologies not only optimise operational efficiency but also enable precise garment management, minimising waste and ensuring responsible resource utilisation.

Collaboration and partnerships are fundamental to our sustainability journey. We actively engage with our customers to implement environmentally conscious practices, such as optimised garment usage and efficient laundering schedules, fostering a culture of sustainability throughout the value chain.

In essence, Lindström is dedicated to leading the way in sustainable pharmaceutical workwear by integrating eco-friendly materials, efficient processes, and innovative technologies. Our vision is to create a more sustainable and resilient future for the pharmaceutical industry, where environmental responsibility and operational excellence are interconnected pillars of success. The shift towards a more eco-conscious approach to cleanroom garments and pharmaceutical manufacturing uniform is not merely a trend, it's a calculated movement towards a greener, more responsible pharmaceutical sector. BS

Dr Manbeena Chawla
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Why multi-use real estate is in demand for life sciences companies

« Jonathan Scheinberg,
Founder,
Outshine Properties

India's Biocon, Enzene Biosciences, and Meteoric Biopharmacueticals, Japan's Daiichi Sankyo, and Singapore's Hummingbird Bioscience, have all recently sought to lease, acquire, and set up shop in a mixed-use space in the US. And for those companies who wish to enter or expand in the US market, New Jersey is a top choice due to its existing infrastructure, cultural connections, robust talent and location.

Some of the world's most iconic resorts, Dubai's Burj Al Arab for example, are purposefully designed so that guests never really have a reason to leave. There are multiple Michelin stars dotting the names of dozens of restaurants, couture shopping throughout, luxurious amenities around every corner, and boundless options for dazzling entertainment.

While "the world's only 7-star hotel" isn't exactly a realistic comparison to an office environment, it does offer inspiration and insight into the demand for mixed-use commercial space. At the end of the day, the average person will spend one-third of their life working. If people are going to allocate roughly 90,000 hours at work, shouldn't we make the places they go to work a bit more enticing?

Some of the world's top life sciences, biopharma, R&D, and clinical manufacturing companies think so. India's Biocon, Enzene Biosciences, and Meteoric Biopharmacueticals, Japan's Daiichi Sankyo, and Singapore's Hummingbird Bioscience, have all recently sought to lease, acquire, and set up shop in a mixed-use space in the US. The reasons for the rise are as vast as the mixed-use amenities the facilities offer, but I think the shift can be summed up in a few key motivations.

Mixed-use commercial space helps companies:

1. Attract and retain top talent: This is especially critical in the life sciences and biopharma space, where employers are in a constant battle to secure the best of the best. For the same reasons you're unlikely to rent an apartment or buy a house sight unseen, it stands to reason that the aesthetics and amenities offered in the place you'll spend 40+ hours each week also matter. The world's best researchers and scientists have options. Money, titles, and benefits are only part of the package. A convenient and inspiring place of work matters. In fact, many life science leaders are beginning to consider office space as a revenue generator, recognising that great design can attract great people.

2. Inspire innovation: There's a reason people go to the countryside to paint, or the mountains to write. They recognise that the environment plays a significant role in output. The same is true of work space. A windowless 10 X 10 office, complete with uncomfortable earth-tone furniture and blank walls, is hardly inspiring. But a campus where ideas can freely flow at a cafe, knowledge can be shared in state-of-the-art communal conference rooms, hypotheses can be tried in real-time in an onsite lab, employees can unwind during a walk through the flower garden, and successes can be celebrated at the campus lounge motivates employees to communicate, collaborate, and create. Mixed-use spaces are proven to increase productivity, efficiency, and engagement, all of which boost the bottom line.

3. Control costs: With the tumultuous state of today's capital markets, not to mention the average cost of building R&D space hovering around $1,000 per square foot, it would be price prohibitive for most companies to design and build a campus that offered all of the amenities found in a typical mixed-

use campus. Further, the regulations and specialty needs in the life sciences space are cumbersome and even more expensive to build, making it much more economical for companies to lease existing, purpose-built multi-use facilities, especially those that were designed with the life sciences industry in mind.

While mixed-use campuses can be found all over the world, New Jersey in particular boasts some of the best facilities for the biopharma and life sciences space. Even better, this American east-coast state is exceptionally appealing to Asia-based companies looking to expand into the US market. Here are some reasons why:

1. Existing infrastructure: New Jersey boasts a number of purpose-built life science and office real estate crafted by the largest pharmaceutical companies in the world who spared no expense in their construction. For example, in 2023, the Northeast Science and Technology (NEST) Center was announced as a reimagined 100+ acre campus at the site of Merck's former global headquarters Kenilworth, New Jersey. The research and development campus offers over two-million square feet of existing facilities, including laboratory and bio manufacturing buildings, as well as redevelopment opportunities. Space on the campus was built by the pharmaceutical powerhouse Merck, and is ideal to be leased by a wide array of life science, biotech, and pharmaceutical companies. Additional mixed-use campuses in New Jersey, such as HELIX and On3, have also tapped into tenant demand by offering life science-specific leasing opportunities.

2. Cultural connections: New Jersey is a global gateway to reach the North American market and offers Asian companies a competitive advantage. For starters, there are multiple direct flights to popular cities across Asia daily. New Jersey is also home to thriving Asian communities boasting some of the largest populations of Indian, Japanese, Taiwanese, and Korean residents in the US. You'll also find strong economic ties to many Asian countries here, with a number of Sister State agreements to support mutual economic growth already in place.

3. Robust talent: A significant number of clinical research organisations, contract development manufacturing organisations, and universities with leading medical and research programmes call New Jersey home. You'll find more residents with STEM degrees here than anywhere else in the United States. In fact, there are more scientists and engineers per square mile in New Jersey than any other state.

The golden rule in real estate has always been location, location, location. And New Jersey certainly boasts that with its proximity to New York City and Philadelphia and their respective deep academic and financial institutions. Even better, New Jersey was recently ranked fifth happiest state in America, largely due to its low crime rate, access to nature, and booming job market. It also doesn't hurt that the state offers over 60 beaches spread across more than 130 miles of Atlantic coastline.

4. Location, location, location: The golden rule in real estate has always been location, location, location. And New Jersey certainly boasts that with its proximity to New York City and Philadelphia and their respective deep academic and financial institutions. The previously mentioned NEST campus is roughly 14 miles from downtown Manhattan, making a night out in New York City easily accessible — the well-designed public transportation system reduces the stress of any commute and amplifies cultural opportunities. Even better, New Jersey was recently ranked fifth happiest state in America, largely due to its low crime rate, access to nature, and booming job market. It also doesn't hurt that the state offers over 60 beaches spread across more than 130 miles of Atlantic coastline.

For companies in the life sciences, biotech, and pharmaceutical industries, mixed-use commercial spaces are becoming more of a prerequisite than a perk. And for those companies who wish to enter or expand in the US market, New Jersey is a top choice. BS

How Thai Biotech is Thriving with Innovations

« **Jeremy Cao,**
General Manager,
BGI Genomics
Southeast Asia

Thailand's biotech industry is rapidly evolving, positioning itself as a key player in the ASEAN regions and the global biotechnology landscape. With a strategic focus on research and development, supportive government policies and a burgeoning ecosystem of startups and research institutions, Thailand is emerging as a hotspot for biotech innovation in Southeast Asia.

The government's commitment to foster innovation and technological advancement is one of the driving forces behind Thailand's evolving biotech industry. The "Thailand 4.0" policy, launched in 2016, aims to transform the country into a high-income nation driven by innovation, technology, and creativity. As part of this initiative, significant investments have been made in research and development, particularly in biotechnology, pharmaceuticals, and healthcare sectors. The bioeconomy is one of the country's ten targeted growth-engine industries.

Additionally, the government has implemented various incentive programmes to attract investment and stimulate growth in the biotech sector. These include tax incentives, grants, subsidies for research and development activities, and initiatives to streamline regulatory processes and facilitate technology transfer. The investment promotion agency Thailand Board of Investment (BOI) awards generous grants to investors. It exempts biotechnology companies from corporate tax and import duties for 8 to 13 years, depending on the technology used and their development activities, and grants simplified work permits to foreigners in this sector.

Thailand also boasts a strong network of research institutions and academic centers dedicated to biotechnology and life sciences. Leading universities such as Mahidol University, Chulalongkorn University, and Kasetsart University have established world-class research facilities and collaborate closely with industry partners to drive innovation. Currently, 24 universities nationwide have the combined capacity to supply approximately 7,000 students with a biotechnology background each year.

The National Center for Genetic Engineering and Biotechnology (BIOTEC) plays an important role in supporting and transferring technology for the development of industry, agriculture, natural resources, the environment, and, consequently, the social and economic well-being of the Thai people. It is one of four national research centers operating under the National Science and Technology Development Agency (NSTDA), which bridges academia & industry.

At the heart of the Eastern Economic Corridor (EEC) in Wangchan District, Rayong Province, the Eastern Economic Corridor of Innovation (EECi) is one of ASEAN's leading innovation hubs. Biopolis is the infrastructure in the EECi in Rayong that provides biotechnology research and services facilities. Its objective is to support the development of Thailand's targeted industries.

According to Thailand's Ministry of Public Health, approximately 18-24 million or 30-40 per cent of the Thai population carries the thalassemia gene, with moderately severe thalassemia patients requiring regular treatment, including blood transfusion and chelation therapy to remove excess iron from the blood. To address this threat to public health, BGI Genomics has been actively working with the Thai government, research institutions, and innovation hubs to share knowledge and leverage complementary expertise. For example, BGI Genomics has partnered with the EEC Office and the Thai Ministry of Health in conducting clinical trials for thalassemia gene therapy.

While Thailand's biotech industry has made significant strides in recent years, it still faces several challenges, including limited access to funding, regulatory barriers, and a shortage of skilled talent. However, these challenges also present opportunities for growth and innovation, mainly through increased collaboration between academia, industry, and government.

Despite these challenges, Thailand is well-positioned to become a regional hub for biotechnology innovation, leveraging its strengths and addressing its challenges. By fostering a supportive environment for research and development, and capitalizing on its existing research excellence and vibrant startup ecosystem, Thailand can drive economic growth, improve healthcare outcomes, and address pressing societal and environmental challenges. BS

Australia signs MoU with Vietnam for cooperation in areas of medicine and health

The University of Sydney, Australia has signed a Memorandum of Understanding (MoU) with the Ho Chi Minh City (HCMC) Department of Health to explore opportunities for cooperation in the areas of medical science, chronic and infectious diseases, and other areas of medicine and health. The Net Zero Institute is signatory to an MoU with the HCMC Institute of Development Studies which will explore opportunities for collaboration in the areas of development, translating and enabling societal adoption of

technologies and systems to deliver global decarbonisation. Innovation in health and decarbonisation are among the most critical priorities shared by both countries. The MoUs follow the University establishment of a pan-University research and engagement hub, the Sydney Vietnam Institute in 2023. The Institute will work with partners, including University of Sydney researchers, to deliver impactful, multidisciplinary research which improves the wellbeing of individuals and communities in Vietnam and beyond. Leveraging the research capabilities of the University, the Institute will deliver research across a broad range of disciplines, with research areas including medicine and health, agriculture and food safety, net zero, business and economics, and arts and social sciences.

Singapore launches new professional growth programme to nurture doctors

In August, the Lee Kong Chian School of Medicine (LKCMedicine) at Nanyang Technological University, Singapore (NTU Singapore) will launch Professional Growth, a new programme that prepares its medical students for the demands of the medical practice by fostering a strong professional identity and mental resilience.

This will be done through regular structured discussions, seminars, and clinical transition workshops which will be conducted throughout the five-year Bachelor of Medicine and Bachelor of Surgery (MBBS) curriculum degree programme. The content for Professional Growth is curated and aligned with key transition periods for medical students, such as when they embark on their clinical postings or enter the healthcare workforce. The curriculum covers topics including burnout, effective help-seeking strategies, and dealing with grief in the medical profession. The new Professional Growth programme leverages LKCMedicine's current pastoral care programme, which is delivered through a House System.

Dr Kiran Mazumdar-Shaw inaugurates bio sciences lab at Chanakya University, Bengaluru

Chanakya University, in Bengaluru, India, recently celebrated a momentous stride in scientific innovation with the inauguration of the Chanakya School of Biosciences. The launch of the School of Biosciences is a landmark in the industry-academia collaboration in driving scientific innovation and addressing real-world challenges. The need for academia is to stay attuned to industry trends and for industry to leverage the wealth of knowledge generated in academic institutions. Dr Kiran Mazumdar-Shaw, a visionary entrepreneur, Chairperson of Biocon Limited, and member of the International Advisory Council at Chanakya University, officially launched the Chanakya School of Biosciences and the academic activities with the support of the Mazumdar – Shaw Philanthropy. Equipped with advanced instrumentation and infrastructure, the newly inaugurated Biosciences Lab is poised to support a wide array of research activities spanning Genomics, Bioengineering, Diesel Biology, Computational Biology, and more. The university plans to offer bachelor's and master's degree programmes along with PhD programmes, short-term courses, workshops, and certificate and diploma courses.

Senhwa Biosciences names Dr Jason Huang as new Chief Medical Officer

Taiwan-based Senhwa Biosciences, Inc. has announced the appointment of Dr Jason Huang, MD, former Regional Therapeutic Area Expert (RTAE), Janssen, a subsidiary of Johnson and Johnson (J&J), as the company's chief medical officer. The appointment has been confirmed following a resolution made during a Board of Directors meeting. Dr Huang will assume the position on June 3. Prior to joining Senhwa Biosciences, he held positions at Janssen as RTAE, Asia Pacific excluding Japan, concentrating on infectious disease/vaccine and immunology and served as global clinical operation cluster head of Taiwan, Korea and Malaysia. He led the team and participated in over 90 projects in J&J, contributing to drug development endeavors encompassing over a hundred studies. His remarkable leadership and abundant experience in the pharmaceutical field had significantly boosted the company's growth. Apart from Janssen, Dr Huang also served as the Medical Department Director at Abbott Laboratories, Taiwan, and as the CEO and Chief Medical Officer at Ascendo Biotechnology Inc., successfully advancing three primary assets from lead identification to pre-IND status within a 3-year time frame.

Takeda appoints Annapurna Das as General Manager, India

Takeda Biopharmaceuticals India (formerly known as Baxalta Bioscience India Private Limited), part of a global values-based, R&D-driven biopharmaceutical leader, has announced the appointment of Annapurna Das as General Manager for its India operations. In her new role, Annapurna will lead the company in India, ensuring patient access to its highly innovative medicines and vaccines, and advancing valuable collaborations to contribute to the growing domestic healthcare and pharmaceutical market. Annapurna comes with over 20 years of experience in the pharmaceutical and biotechnology industry across India and Southeast Asia. Before joining Takeda, she held key leadership positions at various multinational healthcare companies, including Miltenyi Biotec, Sanofi, GSK, MSD, Pfizer and Organon, where she demonstrated exceptional leadership in sales, marketing, corporate strategy and business development across both pharma and vaccines businesses.

NUS scientist Prof. Lim Chwee Teck becomes Fellow of Royal Society

Prof. Lim Chwee Teck, Director of the Institute for Health Innovation & Technology at the National University of Singapore (NUS iHealthtech) and NUSS Professor, has been elected to the prestigious Fellowship of the Royal Society, in recognition of his invaluable contributions to science. The Royal Society is the world's oldest and most esteemed scientific academy in continuous existence, as well as the United Kingdom's national academy of sciences. Prof. Lim's ground-breaking contributions to mechanobiology and biomedical engineering are world-renowned. His pioneering research, exemplified by innovative applications of engineering principles to address health challenges, demonstrates his exceptional academic distinction in the scientific and healthcare community. Prof. Lim, who is also with the Department of Biomedical Engineering under the NUS College of Design and Engineering, is internationally recognised for his leadership in promoting interdisciplinary collaboration and facilitating the translation of research into tangible outcomes. A prolific inventor and technopreneur, he co-founded six deep tech companies, including one IPO in 2018.

Dr Sarah Salvilla to lead new FWD HealthyMe business

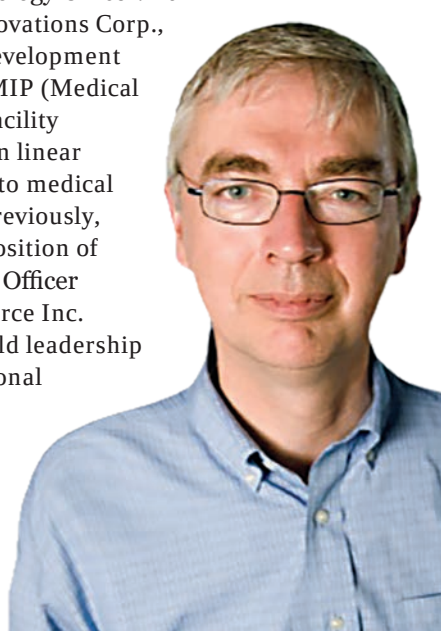
Hong Kong-based FWD Group Holdings has announced the appointment of Dr Sarah Salvilla as Group Chief Health Officer to lead a new health business unit, FWD HealthyMe. FWD HealthyMe aims to be a partner to customers across Asia for their lifelong health needs, utilising the latest developments in health technology and research to provide diagnostic services alongside comprehensive accident and health insurance. Dr Sarah began her career as a clinician and surgeon in the United Kingdom's NHS and later joined the World Health Organization as a consultant for its safer primary care initiative. In 2011, she moved into the commercial sector where she spent a decade working at a global healthcare company in the United Kingdom in senior healthcare management roles spanning international markets. In March 2021, Dr Sarah joined FWD in Hong Kong to lead its Group Customer and Operations team.

AusBiotech announces ex-Sanofi leader as new CEO

Australia's industry body for biotechnology, AusBiotech, has announced ex-Sanofi leader Rebekah Cassidy as its incoming Chief Executive Officer (CEO). Rebekah is an experienced leader with extensive strategy, policy, and media proficiency, coupled with deep health industry expertise. Previously holding leadership roles in some of Australia's largest corporations, for global organisations and in government, she is recognised for her ability to navigate complex stakeholder environments, forge trusted strategic partnerships, and drive meaningful change. Most recently Sanofi's Deputy Head of Corporate Affairs and Sustainability, Australia & New Zealand, Rebekah brings experience from companies working at the bench through to bedside, including The Royal Melbourne Hospital, and her broad experience has aided her understanding of Australia's health ecosystem and the value the life sciences sector brings to Australia.

Dr Mark S. de Jong steps in as CTO at Full-Life Technologies

Full-Life Technologies, a fully integrated global radiotherapeutics company with operations in Belgium, Germany, and China, has announced the appointment of Mark S. de Jong, PhD, to the newly created position of Chief Technical Officer (CTO). Dr de Jong, joins Full-Life with 43 years leadership experience and expertise in accelerator physics, and isotope production, including commercial-scale radioisotope production using linear accelerators. He joined Full-Life from Canadian Isotope Innovations Corp., where he served as Chief Technology Officer. At Canadian Isotope Innovations Corp., he spearheaded the development and operation of the MIP (Medical Isotope Production) facility with a 35 MeV electron linear accelerator dedicated to medical isotope production. Previously, Dr de Jong held the position of Chief Medical Isotope Officer at Canadian Light Source Inc. (CLS). He has also held leadership positions on international advisory committees, including the Taiwan Photon Source and the Shanghai Synchrotron Radiation Facility.



Scientists explore use of COVID-19 variant vaccine against other coronaviruses

An international consortium of researchers developing a vaccine against troublesome COVID-19 variants will receive additional CEPI funding to investigate whether it could also protect against other deadly coronaviruses. Scientists at the International Vaccine Institute (IVI), an international organisation headquartered in South Korea, will lead the new work testing whether a mRNA vaccine candidate that has already undergone early assessment

supported by Norway-based CEPI and others against Omicron, Delta, and Alpha variants could be modified to also successfully protect against a broader array of viruses related to COVID-19. CEPI will top up its investment in the vaccine, initially made in 2022, to support the expansion of the project through preclinical to Phase II clinical trials. CEPI will altogether invest up to $23.9 million in the vaccine candidate. French-Thai vaccine manufacturing group BioNet and universities from US (University of Pennsylvania, University of North Carolina, University of California Davis) and Thailand (Chulalongkorn University) are joining forces with IVI to further the research.

IIT Guwahati pioneers groundbreaking speech reconstruction technology

Researchers at the Indian Institute of Technology (IIT) Guwahati have achieved a significant breakthrough in the field of speech technology with the development and patenting of 'LOQU', a novel method to generate human speech signals directly from vocal cord vibration signals. During speech, vocal folds vibrate due to intrinsic laryngeal muscle movement. In some cases, like mutism from apraxia, individuals may have normal vocal fold vibration without sound production due to coordination issues in tongue or throat muscles essential for speech.

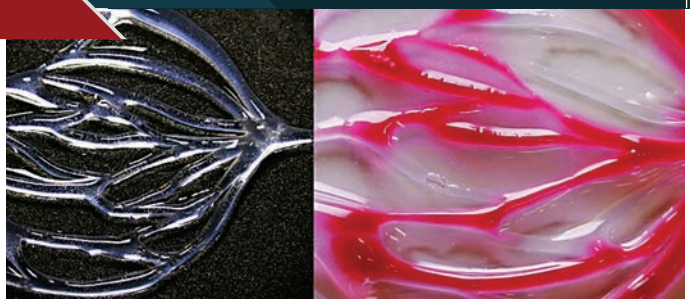
Derived from the Latin word for 'To speak or talk', this technology captures vocal fold movement without invasive procedures, utilising sensors placed over the throat. This innovative approach allows for the reconstruction of speech signals from vocal cord vibrations, offering promising applications for speech-impaired individuals and medical settings. The prototype of LOQU has been developed on a laboratory scale at a cost of under Rs 2000.

Singapore develops drug delivery system inspired by self-assembling proteins from caterpillars

Harnessing the self-assembling abilities of proteins from the cuticles of Asian corn borer moth caterpillars (Ostrinia furnacalis), NTU, Singapore scientists have created nanosized capsules that could be used to deliver drugs and mRNA. The researchers analysed the proteins in the cuticle from the heads of Asian corn borer caterpillars to identify chains of amino acids, known as peptides, that could assemble into ordered structures independently. They screened the proteins for peptides that contained the same sequence of amino acids repeating three or more times, with each sequence consisting of at least five amino acids. Due to the interactions between the repeating amino acids, peptides with this property will likely undergo self-assembly. The scientists identified three peptides that could self-assemble to form hollow nanocapsules from their analysis. The research was led by Assoc. Prof. Yu Jing of NTU's School of Materials Science and Engineering, former NTU Distinguished University Professor Gao Huajian (now a Xinghua University Professor at Tsinghua University), Prof. Liu Tian of Dalian University of Technology and Prof. Yang Qing of the Chinese Academy of Agricultural Sciences.

Nanotech opens door to future of insulin medication in Australia

Research led by the University of Sydney and Sydney Local Health District has developed a new type of oral insulin based on nanotechnology. In the future, it could offer the 75 million people worldwide who use insulin for diabetes a more effective and needle-free alternative. An international team, led by researchers from Australia, have developed a system using nanotechnology that could allow people with diabetes to take oral insulin in the future. The researchers say the new insulin could be eaten by taking a tablet or even embedded within a piece of chocolate. The new nano carrier, tested in mice, rats and baboon animal models, could help people with diabetes avoid side-effects linked to insulin injections such as hypoglycemia (a low blood sugar event, when too much insulin has been injected). These animal studies have shown that the greatest strength of the nano-scale material is that it can react to the body's blood sugar levels. The coating dissolves and releases the insulin when there is a high concentration of blood sugar and importantly does not release the insulin in low blood sugar environments.

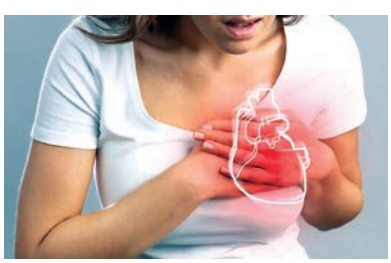


Hong Kong invents fluidic systems resembling blood vascular tissues

A group of researchers from the Faculty of Engineering at the University of Hong Kong (HKU) drew new inspirations from the vascular network and developed a new type of fluidic system named VasFluidics. The fluidic system can modulate fluid compositions via spatially-different reactions between fluids and channel walls, something that has not yet been realised in traditional fluidic systems. Guided by the vascular network, the research team has developed VasFluidics, a fluidic system with functionalisable membrane walls. Similar to blood vessel walls, the walls of VasFluidic channels are thin, soft, and capable of changing liquid compositions via physical or chemical means. This study demonstrates the power of VasFluidics in fluid processing. After separated channel regions are deposited with solutions or coated with enzymes, some regions of the VasFluidic channels physically allow specific molecules to pass through the channel walls, while some chemically change liquid compositions. The results are reminiscent of glucose adsorption and metabolism processes in the human body. VasFluidics has promising applications, especially for designing microtubule structures and bioinks. It has great potential to be combined with cell engineering to develop artificial blood vessel models.

NZ suggests new way to prevent rheumatic heart disease progression

A new way of delivering treatment to prevent rheumatic heart disease progression is significantly less painful than an almost 70-year-old existing treatment, a University of Otago-led study in New Zealand (NZ) has found. The Cure Kids funded study, published in Plos One, was conducted by public health researchers from New Zealand and Australia seeking to improve a painful monthly



method of treatment that many patients avoid. In rare cases, people suffering from a group A streptococcus infection, such as strep throat, can go on to develop acute rheumatic fever or rheumatic heart disease, which causes almost 400,000 deaths worldwide each year. Since 1955, acute rheumatic fever patients, the majority of whom are children or teenagers, have needed painful monthly intramuscular injections of benzathine penicillin. Researchers have now responded to the urgent need to improve the delivery of long-acting penicillin.

Takara Bio launches first commercial dissolvable microfluidic lentiviral transduction enhancer

Takara Bio USA, Inc., a wholly owned subsidiary of Japan-headquartered Takara Bio Inc., has announced the launch of the Lenti-X Transduction Sponge, a first-to-market dissolvable microfluidic transduction enhancer that innovates in vitro lentivirus-mediated gene delivery techniques. With an easy, walkaway workflow, the Lenti-X Transduction Sponge achieves high transduction efficiency in any cell type, enabling downstream research applications in the gene and cell therapy space. Takara Bio USA developed the transduction sponge in collaboration with Dr Yevgeny Brudno, Associate Professor at the School of Pharmacy and the Department of Biomedical Engineering at the University of North Carolina and North Carolina State University. Several limitations in current methods make lentiviral transductions cumbersome. The Lenti-X Transduction Sponge safely replaces & solves the issues inherent to spinoculation, chemical enhancers, & microfluidic devices. The easy-to-use workflow maximises transduction efficiency across an array of cell targets including human primary T cells, CD34+ hematopoietic stem cells, natural killer cells, cells in suspension, & adherent cell lines.

Waters unveils ACQUITY QDa II Mass Detector to deliver wider range of chemical analysis

US-headquartered Waters Corporation has announced the release of the ACQUITY QDa II Mass Detector, the evolution of its highly successful, compact, and streamlined mass detection instrument that delivers high-quality, mass spectral data to chromatographic separations. This new and improved mass detector allows scientists to analyse a wider range of chemical entities with a robust, cost-effective, low energy consumption solution. It enhances and complements Waters best-in-class ACQUITY Premier Liquid Chromatography (LC) separations portfolio to enable flexible analysis of both small and large molecules across pharmaceutical, food, chemical, and materials applications. The ACQUITY QDa II Mass Detector is designed to seamlessly integrate into existing laboratory workflows with the usability and format of a LC detector. It delivers a 20 per cent enhancement in mass range in a simple, small footprint LC-MS instrument designed to seamlessly integrate into highly regulated laboratory settings, ensuring compliance with ease.

HiMedia opens Centre of Excellence for 3D Cell Culture Lab in Mumbai

HiMedia Laboratories, a leading Indian biotechnology company, has announced the inauguration of its state-of-the-art Centre of Excellence (CoE) for 3D Cell Culture Laboratory in Mumbai. The CoE for 3D Cell Culture Laboratory is poised to be a hub of innovation, where cutting-edge technologies and pioneering research will converge to shape the future of cell culture methodologies. With a dedicated focus on 3D cell culture and bioprinting, the facility is equipped with state-of-the-art infrastructure and advanced instrumentation, ensuring precision and efficiency in research and development activities. The facility will spearhead research initiatives aimed at developing innovative solutions and methodologies in 3D cell culture and bioprinting. This includes exploring novel biomaterials, optimising culture conditions, and enhancing bioprinting techniques. It will serve as a collaborative platform for sharing knowledge, resources, and expertise to accelerate the translation of research into tangible applications.

Agilent introduces cutting-edge spectral flow cytometry solution NovoCyte Opteon

US-based Agilent Technologies Inc. has announced the NovoCyte Opteon Spectral Flow Cytometer, propelling flow cytometry into a new era of and accessibility. This cutting-edge system sets a gold standard for acquiring, analysing, and reporting flow data across diverse domains, from basic research to drug discovery and therapy development. The NovoCyte Opteon represents a significant leap forward in flow cytometry technology, with configurations ranging from three to five lasers and support for up to 73 high-quality detectors. It meets researchers' needs for sophisticated, large-panel flow cytometry assays while maintaining the easy-to-use features of the NovoCyte portfolio. Researchers can now explore cellular mysteries with unparalleled precision, simultaneously analysing over 40 markers, providing great flexibility in flow panel design.

Qiagen enhances bioinformatics workflows with new secondary analysis solution for oncology

Germany-headquartered Qiagen has announced the availability of QCI Secondary Analysis, a cloud-based software-as-a-services (SaaS) solution enabling high-throughput secondary analysis for use with any clinical next-generation sequencing (NGS) data. This turnkey service supports all Qiagen QIAseq panels and seamlessly integrates with QCI Interpret, Qiagen's clinical variant interpretation and reporting software, to deliver highly scalable and customisable Sample to Insight workflows for oncology and inherited disease applications. Typically, sequencing data is processed in three phases: After the signals registered by the NGS device have initially been translated into digital information (primary analysis), the DNA fragments encoded must be merged into a connected sequence and analysed for variants in relation to a human reference genome (secondary analysis). In the third and final step (tertiary analysis), the identified variants are interpreted in the context of a specific clinical picture.

Bio-Techne announces new distribution agreement with Thermo Fisher

Bio-Techne Corporation, a global life sciences company providing innovative tools and bioactive reagents for the research and clinical diagnostic communities, has announced a significant milestone in its commitment to providing cutting-edge solutions to its customers. The company has entered into a strategic distribution agreement with Thermo Fisher Scientific, a leading provider of laboratory products and services, in Europe. This partnership marks an important collaboration between two industry leaders in the fields of scientific research, diagnostics, and biotechnology. Under this agreement, Thermo Fisher, through the European arm of its Fisher Scientific Channel, will distribute Bio-Techne's extensive portfolio of innovative products, including antibodies, proteins, immunoassay kits, reagents and enzymes to laboratories and research institutions across Europe. Bio-Techne's state-of-the-art products are designed to accelerate research and improve outcomes in areas including cell and gene therapy, immunology, neuroscience, and more. With this collaboration, Thermo Fisher reinforces its commitment to providing customers with access to the latest technologies and expertise, ultimately advancing scientific knowledge and improving human health.

COVID-19 Fails to Make Dent in Public Health

As of May 12 there are 129,348 new COVID-19 cases reported across the world in the last 28 days as per World Health Organization (WHO) dashboard with the Russian Federation recording 53,000 cases and Australia 20,700 cases. China reported 6,200 cases, Thailand 6,300 cases, New Zealand 6,600, India 2,900, Malaysia 2,200 in the last 28 days ending May 12. Among the WHO regions Europe recorded 16,755 new cases, South-East Asia with 2,834 cases and Western Pacific had 11,023 new cases for the seven days ending May 12.

Singapore reported an increase in the estimated number of COVID-19 cases in the week ending May 11 to 25,900, compared to 13,700 cases in the previous week. The average daily COVID-19 hospitalisations rose to about 250 from 181 the week before, while the average daily Intensive Care Unit (ICU) cases remained low at three cases compared to two cases in the previous week.

The Ministry of Health (MOH) that is closely tracking the recent rise in COVID-19 infections in Singapore, in a statement on May 18, noted that to protect hospital bed capacity and as a precaution, public hospitals have been asked to reduce their non-urgent elective surgery cases, and move suitable patients to care facilities like Transitional Care Facilities or at home through Mobile Inpatient Care@Home.

It also pointed out that globally, JN.1 and its sub-lineages, including KP.1 and KP.2, remain the predominant COVID-19 variants reported since February this year. Locally, the combined proportion of KP.1 and KP.2 currently accounts for over two-thirds of COVID-19 cases in Singapore. As of May 3, the WHO has classified KP.2 as a Variant Under Monitoring. There are currently no indications, globally or locally, that KP.1 and KP.2 are more transmissible or cause more severe disease than other circulating variants.

The Singapore Health Ministry also observed that about 80 per cent of the local population have completed their initial or additional dose but have not received a dose within the last year..

Contrary to this the Finnish National Institute for Health and Welfare (THL) on May 23 recommended an early rollout and two-stage approach to administering booster doses of the COVID-19 vaccine this coming autumn. This fall, THL advised booster doses for a range of high-risk groups, including residents of nursing homes, individuals over 80 years old, and those with significant immunodeficiencies, regardless of age. Emphasis is placed on initiating vaccinations promptly upon vaccine arrival in Finland.

Responding to the global situation the National Disease Control and Prevention Administration in China observed on May 14 that the KP.2 sub-variant of COVID-19 is unlikely to cause a new infection peak in China. It further noted that KP.2-sequenced cases accounted for 0.05 per cent to 0.30 per cent of all locally sequenced cases reported each week in China, which is at an "extremely low" level.

The WHO, in its latest edition of the World Health Statistics report, reveals that COVID-19 reversed the trend of steady gain in life expectancy at birth and healthy life expectancy at birth (HALE). COVID-19 wiped out nearly a decade of progress in improving life expectancy within just two years. Between 2019 and 2021, global life expectancy dropped by 1.8 years to 71.4 years (back to the level of 2012). Similarly, global healthy life expectancy dropped by 1.5 years to 61.9 years in 2021 (back to the level of 2012).

The 2024 report also highlights how the effects have been felt unequally across the world. The WHO regions for the Americas and South-East Asia were hit hardest, with life expectancy dropping by approximately 3 years and healthy life expectancy by 2.5 years between 2019 and 2021. In contrast, the Western Pacific Region was minimally affected during the first two years of the pandemic, with losses of less than 0.1 years in life expectancy and 0.2 years in healthy life expectancy.

Despite COVID-19 erasing a decade of gains in life expectancy, there continues to be progress in global health, with billions of people enjoying better health, better access to services, and better protection from health emergencies. BS

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