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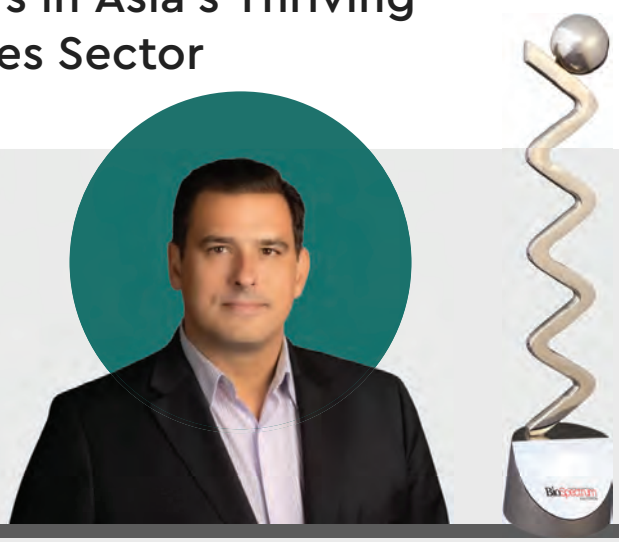
BioSpectrum
the business of Bio & Health Sciences
ASIA EDITION

Volume 20 | Issue 1 | January 2025

BioSpectrum Asia Excellence Awards 2024:

Honouring Innovators in Asia's Thriving Life Sciences Sector



Businessperson of the year

Dr Christian Behrenbruch,
Managing Director and Group CEO,
Telix Pharmaceuticals

Emerging startup of the year

ImmunoAct

Emerging startup of the year

Aevice Health

Product of the year

Needle Free Inection System technology by IntegriMedical

Entrepreneur of the year

Dr Jogin Desai *from Eyestem Research*

Entrepreneur of the year

Dr Lynne Lim for NousQ

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Acknowledgement/ Feedback

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

- Aarthi Janakiraman, India

Thank you BioSpectrum Asia for featuring Pure Global in the cover story in the December 2024 edition.

- Gresheen, Europe

The feature on BGI Genomics looks great in the BioSpectrum Asia December 2024 edition. Looking forward to having more collaboration with BioSpectrum in 2025! **- Keith,** China

Vol 20; Issue 1; January 2025

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Photo: istockphoto

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Printed and published by Ravindra Boratkar on behalf of MM ACTIV Singapore Pte Ltd.

Printed at Times Printers Private Limited
16 Tuas Avenue 5, Singapore 639340
Tel : +65-63112888

Reprinted in India for private Circulation

Chief Editor: Dr Milind Kokje

MCI (P) 025/06/2024

Letter from Publisher

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

Dear Readers,

3D bioprinting, artificial intelligence, blockchain, and robotics are opening new, transformative possibilities for the life sciences sector, with their ceaseless scientific breakthroughs. In the Asia Pacific (APAC) region, biosciences firms have started lateral growth within the sector by utilising mergers, strategic acquisitions, and joint ventures to optimise the use of these technologies. The APAC region has truly emerged as the new centre for growth and innovation, showing no indication of slowing down. Nonetheless, the involvement of all stakeholders is essential at each stage—regardless of whether they belong to the government, academia, or industry—to achieve optimal outcomes. In general, a more promising future awaits the life sciences industry in the APAC region in 2025.

BioSpectrum Asia, a comprehensive B2B media platform from MM Activ Sci-Tech Communications, the top Tech Media and Events firm in India, has been honouring and highlighting leadership, entrepreneurship, and innovation in APAC's life sciences field since 2008 through the BioSpectrum Asia Excellence Awards. The BioSpectrum Asia Excellence Awards 2024 ceremony took place in Singapore on December 6, 2024, to honour the APAC companies and individuals for their outstanding performance and accomplishments in 2023 and 2024.

These awards recognise and showcase the winners in the ongoing battle against the world's emerging health concerns and to identify solutions. BioSpectrum Asia has taken on the challenging responsibility of spotting and showcasing the 'Winners of Tomorrow'. We believe that these awards will motivate contemporary entrepreneurs to surpass previous achievements, while also recognising the pioneers from the past who significantly contributed to their success. Our team has encapsulated profiles of the award winners along with their accomplishments and an event report.

A worldwide biomanufacturing ecosystem is the need of the hour to support all low- and middle-income countries, especially those aiming to produce biological products. Nonetheless, several challenges persist, including a shortage of skilled labour and inadequate regulatory frameworks. Our team has gathered insights from industry leaders who've concurred during a panel discussion on 'Biomanufacturing - A step towards Sustainable Bioeconomy in Asia,' hosted by BioSpectrum Asia. They emphasised the importance of partnerships, especially between the public and private sectors, as well as between industry and academia, to advance the biomanufacturing sector effectively.

For many years, Singapore has been regarded as a global hub in Asia and has worked to stay at the forefront of technology adoption. The city-state has experienced ongoing changes, establishing itself as a worldwide centre for digital manufacturing, particularly within the pharmaceutical sector. This transformation into a powerful pharmaceutical manufacturing entity is marked by an impressive growth path fuelled by significant investments from global leaders and innovative local enterprises. A specialist examines how pharmaceutical firms can manoeuvre through a difficult tech landscape and maintain their lead by utilising data and digital technology to foster continuous growth in Singapore.

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

Thanks & Regards,

Ravindra Boratkar
Publisher & Managing Editor

BioSpectrum Asia Excellence Awards 2024

Honouring Innovators in Asia's Thriving Life Sciences Sector

Asia has, indeed, become the new hub for growth and innovation, with no signs of losing steam. To recognise the Asian companies and individuals for their commendable performance and achievements during 2023 and 2024, BioSpectrum Asia Excellence Awards 2024 ceremony was held at Hotel Fort Canning in Singapore on December 6, 2024. These awards are an extension to observe and highlight the winners in the long battle against the world's emerging health problems and to find solutions. BioSpectrum Asia has taken up the enviable role of identifying and highlighting tomorrow's winners. These awards, we hope, will encourage today's entrepreneurs to better their past successes, while honouring yesterday's stalwarts who played a key role in their success.

"There lies a more sustainable future in biomanufacturing as we head into 2025 and beyond"

BioSpectrum Asia Excellence Awards 2024

Entrepreneur of the Year 2024

StartUp of the Year 2024

IT/OT Convergence

PRODUCT OF THE YEAR 2024

Needle Free Injection System technology by IntegriMedical

IntegriMedical™

REGULARS

QUANTUM LEAP IN DRUG DISCOVERY & PHARMA MANAGEMENT

Dr Milind Kokje
Chief Editor
milind.kokje@mmactiv.com

Two technological developments in Asia – one recent and another a bit old - in two extreme points in drug manufacturing process, drug discovery and drug dispensing, are worth examining. In December, China set up the country's first medicine research institute powered by quantum computing and data. In Taiwan, the pharmacists at Tainan city's Chi Mei Medical Center's pharmacy department have gotten some relief in their work since July as they are getting help from a Generative AI assistant or Copilot.

As is well-known, drug discovery is a long, tedious, complex and highly expensive process involving several molecules, compounds and chemicals with a miniscule possibility of success and waste of money. After about 10 to 15 years of efforts only one in a thousand (0.1 per cent) drugs goes into pre-clinical study and ultimately tested on human beings. Only one in five (20 per cent) of drugs entering human trials finally succeed for commercialisation.

Success of drug development depends on success in clinical trials, otherwise the expenditure on research goes waste. A study at Johns Hopkins Bloomberg School of Public Health showed that failure of trials at phase I or II wastes around $6 million. The loss due to failure at phase III sharply increases to $77 million. This is besides the wastage of the number of years spent on research and trials. The overall process from research to market takes 10 to 15 years. Such factors compel industry to try to increase the pace of the process. For faster development, it is necessary to reduce the time at all stages. A data driven approach could help the industry. Quantum computing seems like a viable solution, as companies like Google, Microsoft and IBM have already invested billions into quantum research. Simulating complex molecular and chemical reactions with high precision drug development would become expeditious.

Bengbu Medical College and Hefei-based Origin Quantum Computing Technology Co. have jointly set up the Hefei Quantum Computing and Data Medicine Research Institute in China with this purpose. It will leverage the strength of quantum computing and promote cooperation between quantum computing and medical research.

Not only China, several other countries are pursuing the strategy to employ big data. In a panel discussion in Seoul at the Healthcare Information and Management Systems Society (HIMSS24) held in October, health leaders from Taiwan, South Korea, and Singapore discussed operationalising big data research for precision medicine. They shared insights in resolving big data exchange and precision medicine hurdles and said that their respective countries are pursuing the same strategy to employ big data in healthcare. All countries are currently working on their respective data integration projects. In such a situation the importance of quantum computing will keep growing with many more Asian countries following China's lead in drug development. That is expected to lead to a new competition in expediting the processes of new drug development and bringing the new drugs into market in minimum possible time. No wonder the current decade is recognised as the quantum computing decade since it is revolutionising several areas of research including healthcare and drug development.

In another notable technical development in Taiwan, a medical centre has deployed a generative AI assistant or copilot to help the staff working in the pharmacy department. In one click a patient's clinical information, summarised from multiple databases on a single interface – medication lists, surgical records, allergy history, lab tests as well as nursing, medical and surgical records, along with a patient's ID number, bed number and diagnosis is made available. It also flags dangerous drug interactions and informs if the particular medicine is covered by insurance or not. Both the technological developments are expected to make a deep impact on the healthcare and pharmaceutical sectors in different ways and lend a transformative dimension to these sectors. BS

Saudi Arabia enhances biotech sector by localising gene therapy manufacturing

The Ministry of Industry and Mineral Resources, in collaboration with the Ministries of Investment and Health in Saudi Arabia, has signed a Memorandum of Understanding (MoU) with American pharmaceutical company Vertex to enhance the biotechnology sector by localising gene therapy manufacturing in the Kingdom, transferring knowledge, and developing innovations and research locally. The partnership aims to help achieve Saudi Arabia's goal of becoming a global biotechnology hub by 2040. It is also expected to attract investments of up to SAR 1 billion to the Kingdom over the next five years. The MoU aims to position the Kingdom at the forefront of the global biotechnology landscape through three key pillars, including developing research, development, and medical treatment expertise within the Kingdom; strengthening local biomanufacturing capabilities in cell and gene therapy; and training and qualifying local talent to accelerate the development of Saudi health experts.

Indonesia pledges $30 M to support global immunisation efforts

The Republic of Indonesia has announced a pledge of $30 million in support of Gavi, the Vaccine Alliance's efforts to raise donor funding for its global immunisation efforts from 2026–2030. The new pledge from a former Gavi-implementing country marks the first contribution by a middle-income country towards Gavi's next strategic period, Gavi 6.0, and it is a testament to the impact of the Alliance's focus on partnering with countries towards self-sustaining immunisation systems. The contribution also underscores Indonesia's global health leadership and championing of the critical role vaccines play in building healthier, safer and more prosperous communities worldwide. To-date, Gavi has helped immunise more than 1.1 billion children, saving more than 18 million lives and helping halve childhood mortality in the lower-income countries where it works. It also provides a critical foundation for global health security, helping countries prevent and respond to infectious disease emergencies. The Alliance is currently seeking to raise at least $9 billion for its next strategic period, which will aim to protect at least 500 million children and save an additional 8–9 million lives between 2026 and 2030.

Australia releases National Dementia Action Plan 2024-2034

The Australian government has released a historic document, the National Dementia Action Plan 2024-2034, marking commitment to the country being more dementia inclusive. The Plan outlines eight high-level actions for implementation over the next decade. The focus is on increasing dementia awareness, reducing the population's risk of dementia, and driving better coordinated dementia services. Progress against the Plan will be tracked and reported annually through an online dashboard developed by the Australian Institute of Health and Welfare. The Plan was developed in partnership with state and territory governments and informed by people living with dementia, their carers and families, aged care providers and workers, advocates, health professionals, researchers and peak industry bodies and organisations. The Albanese Government has already made significant investments to improve dementia care. The 2024-25 Budget invested $101.4 million in better care for people with complex care needs as well as readying the health system for new diagnosis and treatment advances.

India approves robotic system for telesurgery by SS Innovations

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

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

Hong Kong gives nod to Pfizer's 20-valent Pneumococcal Conjugate Vaccine for children

American pharmaceutical firm Pfizer has announced that the Hong Kong Department of Health (DoH) has approved its 20-valent Pneumococcal Conjugate Vaccine (PCV20) for active immunisation for the prevention of invasive disease, pneumonia, and acute otitis media caused by the streptococcus pneumoniae in infants, children and adolescents from 6 weeks to less than 18 years of age, on top of its approval for adults aged 18 years and older. PCV20 builds on the previously approved PCV13, and includes seven additional serotypes (8, 10A, 11A, 12F, 15B, 22F and 33F) shown to be associated with antibiotic resistance, heightened disease severity, invasive potential, and prevalence in paediatric pneumococcal cases. PCV20 is Pfizer's next-generation pneumococcal conjugate vaccine that includes capsular polysaccharide conjugates for the 13 serotypes.

Korea holds Health Dialogue with UK to strengthen cooperation

The Ministry of Health and Welfare (MoHW), South Korea recently announced the first Korea-UK Health Dialogue, held in Seoul. This dialogue was based on the Memorandum of Understanding (MoU) on Healthcare Cooperation, signed by the two countries in August last year to mark the 140th anniversary of their diplomatic relations. The MoU builds on a long-standing partnership in healthcare and medical research, encompassing joint studies and researcher exchanges. During the health dialogue, the two countries reviewed the outcomes of their collaboration in healthcare research and development, examined achievements in strengthening health security against emerging infectious diseases, and shared key best practices for improving public health while exploring ways to enhance future cooperation. Both countries reviewed the progress of ongoing healthcare R&D collaborations and reaffirmed their commitment to strengthening these efforts.

Takeda strengthens oncology pipeline for $200 M deal with Keros Therapeutics

Japanese pharmaceutical company Takeda has entered into an exclusive licensing agreement with Keros Therapeutics, Inc. to further develop, manufacture and commercialise elritercept worldwide outside of mainland China, Hong Kong and Macau. Elritercept is a late-stage investigational activin inhibitor designed to treat anaemia associated with certain hematologic cancers, including myelodysplastic syndromes (MDS) and myelofibrosis (MF). The US Food and Drug Administration (FDA) has granted Fast Track designation for the development of elritercept for very low-, low- and intermediate-risk MDS. Takeda will be responsible for all development, manufacturing and commercialisation as of the effective date of the agreement. Takeda will provide Keros Therapeutics with an upfront payment of $200 million and potential payments relating to regulatory, development and commercial sales milestones, as well as royalties on net sales.

Piramal Alternatives Fund invests Rs 185 Cr in healthcare provider 3Gen Consulting

Piramal Alternatives Fund has entered into definitive agreements to invest upto Rs 185 crore via convertible instruments in 3Gen Consulting, a leading healthcare consulting and revenue cycle solutions provider with presence in India and across USA. The growth capital from the Piramal Alternatives Fund will be strategically utilised to expand 3Gen Consulting's service offerings across both existing and new customer segments, elevate brand recognition, strengthen market positioning, and explore inorganic growth opportunities. Wodehouse Capital Advisors' acted as the exclusive financial and strategic advisor for the transaction. Revenue Cycle Management (RCM) solutions and healthcare consulting are garnering significant interest from both financial and strategic investors. The overall RCM industry in India is currently valued at approximately $4 billion and is projected to experience robust growth at a double-digit compound annual growth rate (CAGR), with expectations to reach $14 billion by 2032.

GSK and Zhifei extend strategic vaccine collaboration worth £2.3 B in China

GSK plc has entered into an agreement with Chongqing Zhifei Biological Products (Zhifei) to revise the terms on which Zhifei will commercialise GSK's shingles vaccine, Shingrix, in mainland China. The revised agreement extends the original 3-year period (2024-2026) during which Zhifei has exclusive rights to import, distribute and co-promote the vaccine in mainland China for an additional eight years through to 2034, with revised expected volumes. The parties expect Zhifei will purchase volumes of

Shingrix, phased over time, with a potential total value to GSK of £2.3 billion (at current exchange rates) over the 6-year period 2024-2029. Under the revised agreement, Zhifei also agrees to engage exclusively with GSK to explore a potential collaboration, with an initial term of 10 years, on the commercialisation of a respiratory syncytial virus (RSV) vaccine in mainland China, subject to regulatory approval of the vaccine. Zhifei is the largest Chinese vaccine company by revenue, has an extensive network which covers more than 30,000 vaccination points across the country, and a strong track record of driving access to innovative vaccines in China.

Samsung Biologics signs $668 M worth manufacturing deal with European pharma company

Samsung Biologics, a global contract development and manufacturing organisation (CDMO) based in South Korea, has announced a series of manufacturing deals with a Europe-based pharmaceutical company. The disclosed deals, worth over $668 million combined, will run through December 2031. The latest agreements bring up the company's cumulative contract value for this year to more

than $4 billion. The company has proactively addressed the evolving needs of clients with a series of significant deals this year, solidifying its customer base across the US, Asia, and Europe. Samsung Biologics has now partnered with 17 of the world's top 20 pharmaceutical companies and continues to extend contracts with existing clients to support them in advancing innovative therapies. Samsung Biologics is set to add antibody-drug conjugate (ADC) services to its portfolio, with a dedicated facility to be completed by the end of this year.

GE HealthCare to acquire remaining 50% stake in Nihon Medi-Physics

GE HealthCare has agreed to acquire full ownership of Nihon Medi-Physics (NMP), by purchasing from Sumitomo Chemical the 50 per cent stake it does not already own. As part of GE HealthCare, NMP can build on its expertise developing and manufacturing proprietary and in-licensed radiopharmaceuticals used in single photon emission computed tomography (SPECT) and positron emission tomography (PET) molecular imaging procedures to detect and diagnose disease. Sumitomo and GE HealthCare expect the agreement to close in early 2025, subject to regulatory approvals.

NMP's product portfolio includes GE HealthCare radiopharmaceuticals used to enable clinical images across neurology, cardiology and oncology procedures, such as its amyloid visualisation radiotracer, VIZAMYL Injection (Flutemetamol (18F) Injection), used in the Alzheimer's pathway; DaTSCAN Injection (Ioflupane (^{123}I) injection) used to evaluate patients with suspected Parkinson's Disease or Dementia with Lewy Bodies; and MYOVIEW (Technetium (99mTc) Tetrofosmin), used in SPECT myocardial perfusion imaging for the evaluation of known or suspected coronary artery disease.

SERI and Carl Zeiss invest SG$20 M for driving innovation in ophthalmic surgery

The Singapore Eye Research Institute (SERI) and Carl Zeiss Meditec AG, one of the world's leading medical technology companies, have entered into a strategic partnership to advance surgical outcomes in refractive and cataract surgeries. The collaboration, titled OPhthalmic Tech Innovation by ZEISS and SERI (OPTIZS), brings together cutting-edge expertise at a combined funding of nearly SG$20 million supported under Singapore's Research, Innovation and Enterprise 2025 Plan (RIE 2025). This initiative will support several research projects over the next three years with a focus on enhancing clinical outcomes and driving innovation in ophthalmic surgery. ZEISS and SERI will work jointly to develop more personalised solutions and to enhance processes before and during surgery, so that patients can enjoy faster visual rehabilitation and better long-term stability after their surgeries. Researchers have identified opportunities for improving diagnostics and precision to further optimise cataract surgery results and provide more consistent results.

Royal Philips and SGH to advance medical imaging capabilities in APAC

Royal Philips, a global leader in health technology, has announced its strategic collaboration with Singapore General Hospital (SGH) to set up a first-of its-kind Magnetic Resonance Imaging (MRI) Training Centre in Singapore. The collaboration enhances SGH's efforts to advance medical imaging education and capabilities through the opening of the training centre to public and private hospitals in Singapore and Asia Pacific (APAC). As part of the collaboration, two SGH MRI radiographers will undergo Philips Clinical Application Training using a Train-the-Trainer approach. This is Philips' signature training programme typically for its application specialists. The extensive training programme will equip and empower SGH radiographers to then share the latest and in-depth expertise in MR clinical practice with others. An MRI Training Centre will also be set up in SGH as an educational hub for other radiographers from across the APAC region.

SK bioscience gets approval for clinical trials of JE vaccine candidate in Australia

South Korea-based SK bioscience, a global innovative vaccine and biotech company, has received approval from the Human Research Ethics Committee (HREC) in Australia for the clinical trial protocols of a Phase 1/2 trials for its mRNA-based Japanese encephalitis vaccine (JE) candidate, GBP560. SK bioscience is establishing its mRNA vaccine platform through the development of vaccines against Japanese encephalitis virus as well as Lassa fever virus. This joint project is based on an agreement with the Coalition for Epidemic Preparedness Innovations (CEPI), which committed up to $40 million initial funding (approximately KRW 57.4 billion) in 2022 to support preclinical and early clinical trials. A further $100 million in funding could be made available at a later date to support late-stage trials/licensure to further validate the mRNA platform and have it ready for use in outbreak situations. During the Phase 1/2 trials, SK bioscience plans to confirm neutralising antibody titers and immune responses, along with collecting data on major adverse events, safety indicators, and the rate of adverse reactions. The company aims to secure interim results by 2026.

Moderna opens new vaccine manufacturing facility in Australia

US-based pharma firm Moderna has officially launched its new vaccine manufacturing facility at Monash University's Clayton campus in southeast Melbourne, marking a significant achievement in advancing mRNA vaccine accessibility and promoting medical research and development in Australia. The Monash Technology Precinct was selected as the site of the Moderna Technology Centre in March 2022 as part of a 10-year strategic partnership between Moderna and the Federal and

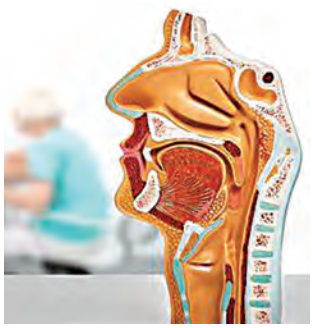
Victorian governments. It joins a host of world-leading research and technology facilities already established in the precinct, including CSIRO, Australian Synchrotron, Victorian Heart Hospital, and Melbourne Centre for Nanofabrication. The facility is Moderna's first manufacturing site in the Southern Hemisphere and the first to be built on a university campus. It will have capacity to produce up to 100 million vaccine doses each year during a pandemic, and in endemic periods produce vaccines for COVID-19, influenza, and respiratory syncytial virus (RSV) (subject to regulatory approvals), improving access for Australians.

Sanofi introduces world's first modular manufacturing facility in Singapore

Sanofi announced the inauguration of its state-of-the-art manufacturing facility, Modulus, in Singapore recently, marking a significant milestone in its commitment to delivering innovative healthcare solutions globally. This next-generation facility, located in Tuas Biomedical Park, is highly digitalised and low-carbon, representing a new era in sustainable biopharmaceutical manufacturing. Modulus leverages a 'industry first' modular concept that enables flexible manufacturing capabilities to produce next generation vaccines and biological medicines. Modulus can be adapted to manufacture up to four vaccines or biopharmaceuticals simultaneously, and can be reconfigured in a matter of days to change over between preestablished technological platforms (live attenuated viral or recombinant protein vaccines, as well as biotechnology derived treatments such as enzymes or monoclonal antibodies), compared with several weeks or months in more conventional plants.

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

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



CU Medicine and CTTQ collaborate to strengthen pharma innovations in Hong Kong

The Faculty of Medicine of The Chinese University of Hong Kong (CU Medicine) has entered into a strategic partnership with Chia Tai Tianqing Pharmaceutical Group Co. (CTTQ), a leading Chinese pharmaceutical company integral to Sino Biopharm. This landmark Cooperation Framework Agreement aims to leverage the combined strengths of mainland China and Hong Kong in pharmaceutical innovation, research, talent development, and the commercialisation of medical products. The collaboration will accelerate the translation of groundbreaking biomedical research into new diagnostic tests and treatments, providing patients quicker access to advanced healthcare solutions. Furthermore, it supports the development of Hong Kong as a pharmaceutical innovation hub in Asia and the Pacific.

NuNerve develops promising MND drug in Australia

A potential new treatment for motor neurone disease (MND) developed by a company spun-out of The University of Queensland (UQ), Australia has produced successful results in a human clinical trial. NuNerve, formed to commercialise research from UQ's Queensland Brain Institute (QBI), has announced its lead drug candidate NUN-004 had proven to be safe and effective in the Phase 1 study. QBI Emeritus Professor Perry Bartlett said the results came after more than two decades of MND research alongside long-term colleague Emeritus Professor Andrew Boyd. The trial involved eight people with MND and 20 healthy volunteers dosed with NUN-004 over a six month period, under the supervision of UQ's Associate Professor Robert Henderson and Dr Jing Zhao. MND progressively attacks nerve cells in the brain and spinal cord and affects more than 2000 Australians every year. The team collaborated with Dr Mike Gerometta to engineer and patent an effective EphA4 blocker, NUN-004, used in this clinical trial. Professor Bartlett said vital funds were now needed to bring the drug candidate through the next stage of development.

Alamar Biosciences establishes commercial presence in APAC region

US-based startup Alamar Biosciences, a company powering precision proteomics to enable the earliest detection of disease, has announced its commercial presence in the Asia Pacific (APAC) region with the installation of the ARGO HT System, an advanced ultra-sensitive proteomics platform, at Hong Kong Center for Neurodegenerative Diseases (HKCeND). The ARGO HT System along with the NULISA Platform are designed to revolutionise biomarker discovery by enabling researchers to detect and quantify proteins at unprecedented levels of sensitivity and accuracy. The partnership with HKCeND will focus on unlocking new insights into the molecular mechanisms of neurodegenerative diseases such as Alzheimer's disease, and Parkinson's disease. The ARGO HT System and NULISA Platform deployments will empower HKCeND's researchers to identify novel biomarkers, accelerate drug development, and improve early detection and personalised treatment strategies for patients.

Health2Sync partners with Western Sydney Diabetes to improve glycemic control

Taiwan-based startup Health2Sync, Asia's leading digital health solutions provider, has announced a new partnership with Western Sydney Diabetes. This collaboration aims to digitise the Western Sydney Local Health District (LHD) workflow by leveraging technology to improve patient outcomes and alleviate the strain on healthcare resources. Westmead Hospital and Blacktown Mount Druitt Hospital, both under the Western Sydney (LHD), aim to enhance care models for gestational and

type 2 diabetes. By implementing Health2Sync's patient application at the two hospitals and its surrounding primary care networks, a virtual care model can be established, and clinicians can effectively manage their patients, improve doctor-patient communication, and reduce the need for frequent hospital visits. Health2Sync's app offers a comprehensive suite of features designed to empower patients to take control of their health. The app's seamless integration with over 80 devices, including glucometers, blood pressure monitors, weight scales, fitness trackers, and market-leading continuous glucose monitor (CGM), simplifies data collection and analysis.

Neurophet secures US FDA 510(k) clearance for multiple sclerosis analysis solution

South Korea-based Neurophet, an artificial intelligence (AI) solution company for brain disease, has announced that its brain MRI analysis software 'Neurophet AQUA', has obtained 510(k) clearance from US Food and Drug Administration (FDA) for its newly integrated multiple sclerosis (MS) analysis functionality. The initial clearance, secured in May last year, authorised brain atrophy analysis using T1-weighted images derived from MRI scans, specifically targeting neurodegeneration conditions. The latest clearance extends the software's capabilities, incorporating advanced analysis of MS and white matter hyperintensities (WMH) using T2-FLAIR images. Neurophet AQUA analyses MRI (magnetic resonance images) with AI technology to analyse brain atrophy and WMH observed in neurodegenerative diseases such as Alzheimer's disease. It provides rapid segmentation and analysis of brain images across all demographics, delivering results within just five minutes.

Recursive inks MoU with Saudi Arabia's largest medical research institution

Recursive Inc., a developer of artificial intelligence (AI) solutions that facilitate sustainable business transformation, has announced the signing of a Memorandum of Understanding (MoU) with King Abdullah International Medical Research Centre (KAIMRC), the largest medical research institution in the Kingdom of Saudi Arabia, a part of the Saud Bin Abdulaziz University for Health Sciences (KSAU-HS) and connected to Ministry of National Guard-Health Affairs (MNGHA), a nation-wide healthcare system with specialised hospitals and transplant centres and a network of primary to tertiary care hospitals across Saudi Arabia, to jointly develop an advanced AI system for the early screening of tuberculosis (TB). Through co-development efforts between KAIMRC scientists, MNGHA physicians, and Recursive, chest X-ray imaging data will be utilised to enhance early screening and detection of TB.

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

India-based Centre for Cellular and Molecular Platforms (C-CAMP) has entered into a partnership with the University of Massachusetts (UMass) Venture Development Center and TiE Boston to promote innovation and entrepreneurship in healthcare, life sciences, and biotechnology domains through an Indo-US Corridor. The Corridor is envisioned to catalyse the growth of life sciences ventures in both ecosystems. The India-US Life Sciences & Healthcare Venture Growth

Corridor will facilitate linkages between the two ecosystems anchored by C-CAMP and UMass to advance the vibrant scientific research the two are reputed for; enable co-development of innovation-led products and technologies towards commercialisation; leverage each other's entrepreneurial ecosystem to nurture and accelerate ideation, startup creation, and growth of early-stage startups. The infrastructural ties arrived at are co-incubation and soft-landing for startups and SMEs in each other's ecosystems, access to mutual technology capabilities and scientific expertise, and investments in associated startups, especially in biopharma and biotech, facilitated by TiE Boston.

New WHO report reveals governments deprioritising health spending

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

WHO announces first prequalification of TB diagnostic test

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

International Pathogen Surveillance Network announces first recipients of grants

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

El Salvador joins the Alliance for Primary Health Care in the Americas

The Ministry of Health of El Salvador (MINSAL) has joined the Pan American Health Organization (PAHO), the Inter-American Development Bank (IDB) and the International Bank for Reconstruction and Development (World Bank) through the establishment of the Mesa Consultiva of Primary Health Care (PHC) in El Salvador. The aim of the Mesa Consultiva is to address inequities in access to health, universal coverage, and emerging challenges such as climate change, demographic and epidemiological transitions using the Primary Health Care approach. The Mesa Consultiva is a national-level innovative governance mechanism to facilitate coordination between the Alliance and the Ministry of Health of El Salvador. It will promote the alignment of technical and financial resources towards the country's strategic objectives, as well as ensure coherence between current and future projects.

Largest-ever study to track chikungunya burden in East Africa

A team of scientists in the UK, Kenya and Tanzania will soon find out the extent to which chikungunya, a debilitating mosquito-borne disease-causing large outbreaks in Asia and South America, is also affecting countries in East Africa. Led by the University of Oxford, the scientists are set to investigate the number of children and adults affected by chikungunya at sites in Kenya and Tanzania. While chikungunya outbreaks are occurring with increasing regularity around the world, with over 480,000 cases reported this year globally, testing remains largely limited in East Africa and there is concern that cases are largely going unreported. From early Spring 2025, all patients, including children, presenting at ten healthcare facilities across the two countries with fever or neurological symptoms will therefore now be screened and tested for chikungunya virus.

Unitaid and Gavi join hands to improve access to cervical cancer prevention

Unitaid and the Vaccine Alliance (Gavi) will pilot integrated cervical cancer screening and treatment with human papillomavirus (HPV) vaccination programmes through a new partnership. The initiative will build off Unitaid's existing cervical cancer screen-and-treat programmes in Côte d'Ivoire and Nigeria, incorporating vaccination awareness and service delivery with the goal of increasing coverage for both women and girls. In 2022, Gavi and partners launched a push to revitalise HPV vaccination in lower-income countries. Meanwhile, Unitaid has worked with the governments

of both countries since 2020 to introduce secondary prevention, ensuring women who cannot be vaccinated receive lifesaving screening and treatment options. While coverage rates have improved drastically, including in Nigeria and Cote d'Ivoire, they remain far too low, and much more needs to be done to ensure girls and women are protected against cervical cancer. Led by partners Expertise France (EF) and the Clinton Health Access Initiative (CHAI), the project will test innovative approaches to increasing vaccination coverage for girls and screening for adult women through enhanced service delivery models in schools, homes and clinics, targeting both girls and their female caretakers. The project will also emphasise targeted health communication campaigns, knowing that girls' ability to access HPV vaccination is often influenced by their families, communities, and other decision-makers.

UK, US announce $2.9 M to strengthen Ghana's healthcare system

The United Kingdom (UK) and United States (US) have announced a contribution of almost $3 million (GHS 44 million) towards a partnership with the Government of Ghana to strengthen financial management of the country's health system. The Memorandum of Understanding (MoU) will help 40 districts and more than 900 health facilities to adopt Ghana's Integrated Financial Management Information System (GIFMIS) in 2025.

GIFMIS aims to improve financial transparency and accountability within the health sector – with a particular focus on training key staff to effectively use digital systems for budgeting, reporting and managing funds. Better financial management will in turn lead to improved delivery, accessibility and affordability of healthcare for Ghanaians. The UK's Foreign, Commonwealth and Development Office will provide $1.8 million, while the United States, through the United States Agency for International Development (USAID), will contribute $1.1 million.

IAVI and IPD collaborate to advance vaccine development in Africa

IAVI, a nonprofit scientific research organisation dedicated to addressing urgent global health challenges including HIV, tuberculosis, and emerging infectious diseases (EIDs), and the Institut Pasteur de Dakar (IPD), a non-profit foundation focused on equitable, sustainable, and affordable access to health in Senegal, Africa, and worldwide, have signed an agreement to formally collaborate for vaccine development, manufacturing, and access in Africa. With the signing of this agreement, IAVI and IPD are establishing a collaboration to research, develop, manufacture, and commercialise a range of novel vaccine candidates for both endemic and emerging infectious disease (EID) threats, all manufactured using a common vaccine production platform. IAVI and IPD share a common commitment to ensuring the success of Africa's New Public Health Order, coordinated by the Africa Centres for Disease Control and Prevention (Africa CDC), in enabling the African vaccine manufacturing industry to develop, produce, and supply over 60 per cent of the total vaccine doses required on the continent by 2040.

UK & Switzerland deepen science ties with £16 M backing

Science and tech leaders from the UK and Switzerland have agreed to update the landmark science and research agreement between the two countries, to focus work on some of today's most pressing challenges, from boosting public health to making the shift to green energy. The UK and Switzerland are natural partners when it comes to science and innovation. Together, the two countries are home to 10 of Europe's top 20 research universities. £16 million joint funding includes backing to support UK-Swiss clinical trials that could help unlock new treatments and diagnoses for a range of diseases. This includes work on new antibacterial coatings that could prevent infections during hip and knee replacements, to using quantum tech to develop a new generation of cheap, specialised sensors for use in anti-counterfeiting, manufacturing quality control, and more. The projects bring together UK and Swiss businesses, research institutes and universities. This builds on previous UK-Switzerland Collaborative R&D funding which supported cutting edge work ranging from developing new ways of capturing CO2 emissions, to developing robot surgeons to improve stroke treatment.

Honouring Innovators in Asia's Thriving Life Sciences Sector

Asia has, indeed, become the new hub for growth and innovation, with no signs of losing steam. To recognise the Asian companies and individuals for their commendable performance and achievements during 2023 and 2024, BioSpectrum Asia Excellence Awards 2024 ceremony was held at Hotel Fort Canning in Singapore on December 6, 2024.

These awards are an extension to observe and highlight the winners in the long battle against the world's emerging health problems and to find solutions. BioSpectrum Asia has taken up the enviable role of identifying and highlighting tomorrow's winners. These awards, we hope, will encourage today's entrepreneurs to better their past successes, while honouring yesterday's stalwarts who played a key role in their success.

The BioSpectrum Asia Excellence Awards 2024 was divided into two categories- Industry Segment and Jury Special. The former focused on the following awards - Top Company for Bioprocessing; Top Company in Manufacturing Technology & Equipment; Top Company in Packaging & Drug Delivery Services; Top Company in Supply Chain Logistics & Distribution; Top Company in Clinical Research-Based Development; Top Innovation & Collaborations in ADC Drug Development; Emerging AI Powered Drug Discovery Platform; Top Company in Medical Packaging; Outstanding Leadership in MedTech Advocacy in Asia-Pacific; and Excellence in Medtech Innovation.

On the other hand, the Jury Special category had the following awards associated with it- Startup of the year; Product of the year; Entrepreneur of the year; and Businessperson of the year.

While the Jury Special category had well-defined criteria for which BioSpectrum's editorial team brought together a six-member international jury to evaluate the shortlisted nominees, the Industry Segment winners were selected by the magazine's editorial team to turn the spotlight onto companies we believe will lead the way in the near future.

BioSpectrum Asia Excellence Awards 2024 jury panel comprised of - Dr Dario Heymann, Chief

Research Officer, Galen Growth, Singapore & AI Office, SingHealth; Dr Satya Dash, Founding & Former Head Strategy; Biotechnology Industry Research Assistance Council (BIRAC), Department of Biotechnology (DBT), Government of India; Dr Clarice Chen, Director, Healthcare & Biomedical, Enterprise Singapore; Dr Wallace Chih-Hwa Lin, Secretary-General, Taiwan BIO; Dr Kavita Singh, South Asia Director, Drugs for Neglected Diseases initiative (DNDi); and Dr Milind Sabnis, Head of Advisory, Healthcare, Asia-Pacific, Frost & Sullivan.

"Technologies such as 3D bioprinting, artificial intelligence, blockchain, and robotics are creating transformative opportunities for the industry, as scientific achievements continue to take place. The Asia Pacific region is playing a key role here. For instance, Singapore is rising as a significant influence in medical manufacturing, while Australia has put in place regulatory reforms for emerging technologies; and South Korea is focusing on biosimilars. Further, across the Asia Pacific region, different players have begun lateral expansion across the Life Sciences sector by leveraging mergers, strategic acquisitions, and joint ventures. Overall, brighter time lies ahead for the life sciences sector in the Asia Pacific region. However, participation of all stakeholders is quite crucial at every step- whether they're part of the government, academia or industry- to bring out the best results", pointed out Ravindra Boratkar, Publisher and Managing Editor, BioSpectrum Asia, during the BioSpectrum Asia Excellence Awards 2024. BS

BioSpectrum Asia Excellence Awards 2024

Jury Award Winners for 2024

- **BUSINESSPERSON OF THE YEAR**
  Dr Christian Behrenbruch,
  Managing Director and
  Group CEO of Telix Pharmaceuticals

- **ENTREPRENEUR OF THE YEAR**
  Dr Jogin Desai (Eyestem Research)
  Dr Lynne Lim (NousQ)

- **EMERGING STARTUP OF THE YEAR**
  ImmunoAct and Aevice Health

- **PRODUCT OF THE YEAR**
  Needle free injection system technology by IntegriMedical

Industry Segment Award Winners for 2024

- **Top Company for Bioprocessing -** Eppendorf
- **Top Company in Manufacturing Technology & Equipment -** Cytiva
- **Top Company in Packaging & Drug Delivery Services -** West Pharma
- **Top Company in Supply Chain Logistics & Distribution –** Catalent Pharma Solutions
- **Top Company in Clinical Research-Based Development -** Medidata
- **Top Innovation & Collaborations in ADC Drug Development –** GenScript Biotech
- **Emerging AI Powered Drug Discovery Platform -** Molecule AI
- **Top Company in Medical Packaging -** Oliver Healthcare Packaging
- **Outstanding Leadership in MedTech Advocacy in Asia-Pacific Award –** APACMed
- **Excellence in Medtech Innovation -** Medtronic

PANELIST

Ravindra Boratkar, Publisher and Managing Editor, BioSpectrum Asia (fourth from left) felicitating the panelists- (L-R)- Dr Saket Jhajharia, Chief Operating Officer, ID Capital; Damian Cher, Director of Manufacturing Capacity Solution in Asia Pacific, Cytiva; Dr Satya Dash, President- Strategy, Bigtec & Founding Head-Strategy, BIRAC, Government Of India; Franco So, Head of Bioprocess, Sales, Asia Pacific, China, Eppendorf; Lew Fei-Chuin, Biopharma Market Manager, Agilent Technologies; and Dr Dario Heymann, Chief Research Officer, Galen Growth Singapore, AI Office, SingHealth.

"There lies a more sustainable future in biomanufacturing as we head into 2025 and beyond"

Another important aspect of the event was an engaging panel discussion with industry experts, on the topic- 'Biomanufacturing- A step forward toward Sustainable Bioeconomy in Asia'. The session was moderated by Dr Satya Dash, Founding & Former Head Strategy; Biotechnology Industry Research Assistance Council (BIRAC), Department of Biotechnology (DBT), Government of India; and panelists included Damian Cher, Director of Manufacturing Capacity Solution in Asia Pacific, Cytiva; Lew Fei-Chuin, Biopharma Market Manager, Agilent Technologies; Franco So, Head of Bioprocess, Sales, Asia Pacific China, Eppendorf; Dr Saket Jhajharia, Chief Operating Officer, ID Capital; and Dr Dario Heymann, Chief Research Officer, Galen Growth.

A global biomanufacturing ecosystem is the need of the hour that can serve all low- and middle-income countries, in particular, wishing to produce biologicals, such as vaccines, insulin, monoclonal antibodies and cancer treatments. As more biopharma companies are emerging, and existing companies are expanding their product pipelines, there is a growing demand for technologically advanced biomanufacturing processes to develop innovative therapies.

However, a few hurdles remain, such as lack of a skilled workforce and weak regulatory systems. In addition, setting up biomanufacturing facilities or upgrading existing infrastructure requires substantial capital investment.

Talking about these challenges, Dr Saket Jhajharia emphasised on the current role of biomanufacturing in the food sector stating, "Biomanufacturing is currently only working for very high value ingredients, that sell over $100-200 per kilo. The whole challenge lies in implementing biomanufacturing for producing healthier alternatives like soya, which sells for $2-3 per kilogramme. The industry is now trying to make more economical choices in both their upstream and downstream processes. Likewise, in the pharma sector, the industry is looking out for alternative cultured media for the biomanufacturing processes, to bring down the costs. Simultaneously, the industry is also looking for ways to reduce energy and water consumption, to ensure sustainable practices."

Laying an equal emphasis on biomanufacturing and sustainability, Damian Cher said "There lies a more sustainable future in biomanufacturing as we head into 2025 and beyond. There are significant opportunities for growth in sustainability. According to Cytiva's Global Biopharma Sustainability Review, which surveyed 800 pharma and biopharma leaders across 18 countries, only 39 per cent of respondents believe they're effectively incorporating sustainability throughout the product life cycle. However, 63 per cent of respondents see sustainability as imperative to business growth and innovation."

Adding more towards the challenges surrounding the biomanufacturing space, Dr Dario Heymann pointed out, "One of the key factors that affects the profitability of a manufacturing business is the amount of capital that is required to produce a unit of output. And perhaps partnerships with established players can be considered as a potential solution."

Both Lew Fei-Chuin, Biopharma Market Manager, Agilent Technologies, and Franco So, Head of Bioprocess, Sales, Asia Pacific China, Eppendorf agreed upon this aspect of partnerships, particularly between the public-private sector, and the industry and academia, to take the developments within the biomanufacturing sector to a more fruitful stage.

The panel discussion ended on a hopeful note, with experts suggesting the way forward to a sustainable bioeconomy in Asia, with a bright spot on biomanufacturing.

The deliberation was followed by the Awards Ceremony, felicitating the winners of the Industry Segment and Jury Special categories. In the coming pages we have covered the profiles of the Jury Special Award Winners, along with a photo gallery of the BioSpectrum Asia Excellence Awards 2024 event, supported by Cytiva, EcoLab and BioSpectrum Jobs! BS

Dr Christian Behrenbruch,

Managing Director and Group Chief Executive Officer (CEO), Telix Pharmaceuticals

Refining the Use of Radiation

Dr Christian Behrenbruch founded Telix Pharmaceuticals in 2015, along with Andreas Kluge, with an aim to create a truly integrated radiopharmaceutical company, enabled by precision medicine. With over two decades of radiopharmaceuticals experience and a strong track record in global healthcare and biotechnology entrepreneurship and technology commercialisation, Dr Behrenbruch has brought a unique blend of technical expertise and executive leadership to guide Telix as it furthers the next stage of growth. Dr Behrenbruch has a strong focus on purpose and values-leadership and is well versed in all aspects of running a publicly listed company as both the Chief Executive Officer (CEO) and Director in the United States and Australia.

Under his leadership, Telix is developing targeted radiation therapies with the potential to be efficacious as stand-alone treatments or as complements to existing treatment modalities, addressing areas of high unmet medical need.

Illuccix (kit for the preparation of Ga-68 Glu-urea-Lys(ahx)-hbed-CC Injection), also known as 68Ga-PSMA-11 injection), Telix's lead prostate cancer imaging agent having received US Food and Drug Administration (FDA), Australian Therapeutic Goods Administration (TGA), and Health Canada approval, has been a key driver in the company's business growth.

In the second year since launching Illuccix, the commercial-stage diagnostics business has gone from strength to strength,

> ***"This recognition by BioSpectrum Asia reflects the extraordinary accomplishments of the dedicated team at Telix, an exceptional group of individuals that are driven to transform the lives of patients living with cancer. In 2024, somewhere in the world, a patient received a Telex product about every five minutes.***

ACCOMPLISHMENTS

Dr Behrenbruch holds a DPhil (PhD) in biomedical engineering (the University of Oxford); an executive MBA (jointly awarded from New York University, HEC Paris and the London School of Economics (TRIUM Programme); a Juris Doctor (the University of Melbourne). He is a Fellow of Engineers Australia in the management and biomedical colleges and a Graduate of the Australian Institute of Company Directors.

Previously, Dr Behrenbruch served as Chief Executive Officer at Mirada Solutions (now Mirada Medical Limited) (from July 2001 to December 2002), President at CTI Molecular Imaging (now Siemens Healthcare) (from August 2003 to September 2006), Chief Executive Officer at Fibron Technologies, Inc. (from June 2008 to December 2011) and Chief Executive Officer at ImaginAb, Inc (from October 2007 to February 2015).

He also served as a Director at Siemens Molecular Imaging (from May 2005 to September 2006), Momentum Biosciences LLC (from July 2007 to June 2009), Radius Health Ltd (now Adaptix Ltd) (from May 2009 to February 2011), Factor Therapeutics (from October 2015 to May 2021) and Amplia Therapeutics (from May 2016 to February 2020). Dr Behrenbruch was the Chairman of Cell Therapies (a partnership with the Peter MacCallum Cancer Centre) from October 2012 to July 2014.

underpinning total revenue growth of 214 per cent from $160.1 million in 2022, to $502.5 million in 2023. Telix has achieved a meaningful market share in the US, estimated at over 30 per cent of the PSMA-PET/CT1 imaging market for prostate cancer.

During 2023, Illuccix became available in two additional regional Australian locations - Mackay in Queensland, and Hobart in Tasmania. For the first time, men living outside metropolitan areas in Australia have access to advanced prostate imaging that is both approved by the Australian TGA and available for reimbursement on the Medicare Benefits Schedule (MBS).

"We have built a strong global supply, manufacturing and distribution network. This has underpinned the successful launch of Illuccix and the delivery of many clinical trials. We continue to invest in vertical integration and manufacturing and in 2023 we opened our state-of-the-art radiopharmaceutical production facility in Belgium, one of the largest of its kind in Europe. In addition, the integration of Optimal Tracers has expanded our translational radiochemistry capability and established a US-based laboratory and production footprint for radiopharmaceutical doses to support clinical trials", said Dr Behrenbruch.

With a clear focus on the company's ongoing investment around vertical integration and building integrated supply chains, 2024 saw Telix Pharma entering into an agreement to acquire Canada-based radioisotope production technology firm ARTMS Inc., its advanced cyclotron-based isotope production platform, manufacturing plant and stockpile of ultra-pure rare metals required for consumable target production.

Later in the year, the company announced the acquisition of RLS (USA) for $230 million to build the next generation radiometal production network. Further, majority investments in 2024 were focused on the delivery of late-stage programmes, including preparation to launch kidney cancer imaging agent Zircaix and Pixclara, an imaging agent for cancerous brain lesions.

"The ability to successfully commercialise our imaging agents is important to our strategy in several ways. Revenue generation provides a significant source of funding towards the development of our therapeutic programmes. More strategically, it is the foundation of our integrated precision medicine approach because the ability to precisely quantify disease, guide treatment decisions and select patients for therapy both de-risks and enhances our therapeutic pipeline", mentioned Dr Behrenbruch.

With major plans in place for the company's future growth, Dr Behrenbruch is expanding the company's theranostic pipeline with new assets targeting Fibroblast Activation Protein (FAP), one of the most promising pan-cancer targets in nuclear medicine. Telix's development programme will initially focus on the treatment of bladder cancer, rounding out its urology franchise, which includes late-stage therapeutic programmes for kidney and prostate cancers.

"2024 proved to be a pivotal year in the history of Telix, as we unlocked the value in our therapeutic pipeline and continued to impact the lives of patients worldwide, every single day. I thank all of our employees who work so tirelessly, inspired by our purpose to help patients with cancer and rare diseases live longer, better quality lives", highlighted Dr Behrenbruch. BS

ENTREPRENEUR
OF THE YEAR
2024

Dr Jogin Desai,

Co-Founder &
Chief Executive Officer,
Eyestem Research

Eyeing 20-20 Vision of Excellence

A native of Ahmedabad and an expert in the field of drug development, Dr Jogin Desai incorporated his startup Eyestem Research in India, back in 2015, aiming to democratise access to cell therapy through a scalable cell therapy platform.

The journey of Eyestem started when Dr Desai met ophthalmologist Dr Rajani Battu (currently the Chief Medical Officer at Eyestem), in 2015, for a medical appointment that changed everything for both of them. Following the appointment, Dr Rajani introduced him to patients diagnosed with degenerative diseases of the eye and the terrible suffering they have to endure. He realised that dry age-related macular degeneration (AMD) is the largest cause of incurable blindness in the world for patients over 50 years. And this meant that for 196 million people suffering from this disease around the world, 40 million of which are in India, finding a cure is a need of the hour.

Eyestem, as a company, was initiated in late 2015 by Dr Jogin Desai, Dr Rajani Battu and Dr Dhruv Sareen, with a small project handed to a research team led by Dr Rajarshi Pal, then at Manipal Institute of Regenerative Medicine. A year later, Dr Desai approached Centre for Cellular and Molecular Platforms, C-CAMP, in Bengaluru, with the intention to incubate considering the state-of-the-art cell culture facilities and diverse funding and mentoring programmes available at C-CAMP. Dr Rajarshi Pal joined as a Co-Founder to incubate and lead the science.

Soon after, Eyestem was formally kickstarted in 2017 to address the unmet needs of degenerative eye diseases. Through its flagship product Eyecyte-RPE, the company is replacing lost retinal pigment epithelium cells. It is designed to restore sight for patients in the early stages of AMD and arrest losses for those in the later stages.

This pioneering treatment marks a major milestone for the Indian biotechnology sector and the global fight against vision loss, as it has the potential to replace damaged retinal cells. At present, Eyestem Research has completed a set of six patient injections for

> ***I am very bullish about the growth of the biotech sector, which I firmly believe will do what the IT sector did for the Indian economy 20 years ago.***

its RPE suspension therapy for Dry AMD treatment.

"Most cell and gene therapy products under development in the West are estimated to cost over $200,000. Our vision is to democratise access to such treatments at a fraction of these costs and begin disruption of the current status quo with our Eyecyte-RPE product", said Dr Desai.

But of course, the journey has not been a smooth ride for this entrepreneur, considering the limited funding that is available in the Indian biotech sector, especially in the drug development and cell therapy space. Nonetheless, Dr Desai has emerged as a successful entrepreneur by raising more than Rs 150 crore for his startup since inception.

"The venture fund ecosystem to invest in Biotech in India is still at a nascent stage. Also, the ability to think of science in product development Vs academic research is lacking. That being said, I am very bullish about the growth of the biotech sector, which I firmly believe will do what the IT sector did for the Indian economy 20 years ago. India needs to invest in science for the next 20 years at over 2.5 per cent of GDP. Indian Pharma companies should leverage this opportunity and invest in innovative startups which align with their core philosophy, as biotech investments provide better returns than tech investments", shared Dr Desai.

Despite challenges, Dr Desai is moving forward with full enthusiasm to achieve his goal. To advance in his mission to revolutionise treatment for dry AMD with an innovative cell therapy, Eyecyte-RPE, Eyestem has collaborated with Retinal, a pioneer in advanced artificial intelligence (AI)-driven analytics for ophthalmology.

"Their sophisticated AI tools and the RetinAI Discovery platform integrate perfectly with our vision, potentially shortening the timelines for our clinical trials and enhancing the accuracy of our analyses. This is not just a partnership; it's a confluence of high-end biotech innovation and cutting-edge artificial intelligence aiming to rewrite the narrative for patients affected by dry AMD worldwide", he elaborated.

In addition to this, Eyestem is also among a very few companies globally working on the treatment of Retinitis Pigmentosa (RP), in the form of Eyecyte-PRP. Eyecyte-PRP replaces the photoreceptor cells that are lost as a consequence of this disease. RP is a group of rare, genetic disorders that involve loss of the light-sensing photoreceptor cells in the retina. It affects children and causes total blindness by the time they reach their 20s and 30s.

"Generating transplantable retinal photoreceptors from induced pluripotent stem cells (iPSCs) holds tremendous promise to treat RP by replacing the damaged or dysfunctional native photoreceptors with healthy and functional ones. Eyestem has generated Eyecyte-PRP through a patent pending unified protocol. We have already done extensive in vitro characterisation of the product and will soon be ready to start animal trials, in collaboration with Oregon Health and Science University, Portland, to test the efficacy of our product", highlighted Dr Desai.

Dr Desai brings more than 15 years of experience in growing and nurturing businesses to his newest venture. Prior to Eyestem, he was part of the global leadership team at Quintiles and headed up their cardiac safety business from 2001 to 2007. More recently, he was the CEO of Cenduit, the world's largest standalone randomisation company with offices in Bengaluru, Basel, Philadelphia and North Carolina and a joint venture of Thermo Fisher Scientific. BS

ENTREPRENEUR OF THE YEAR 2024

Dr Lynne Lim,
Co-Founder &
Chief Executive Officer,
NousQ

Making an Impact with a 'CliKX'

Practicing as an Ear Nose Throat (ENT) surgeon for 25 years, and having received opportunities to help with surgeries in over 10 countries in the Asia Pacific (APAC) region and Middle East, gave Dr Lynne Lim a helicopter view of healthcare needs on a global scale. During a long stint in the public health system and National University Health System in Singapore as a clinician, academic, teacher and administrator, she was always interested in setting up new services, pioneering new surgeries, building new programmes and products. The public system gave her huge opportunities to create and innovate, but the personal risk was of course, a lot less, with funding and manpower more readily available.

She left a tenured Associate Professor position and started private practice at Mount Elizabeth Medical Centre in 2004, for family reasons, and also for the challenge of surviving in the new world of private practice.

"Though many do not realise, starting clinical private practice is also a risky venture into the unknown. It has given me, though, a well-rounded appreciation of what is needed for the entire healthcare ecosystem in Singapore to work well. It has brought me closer to patients and payors and their needs, on a global scale", said Dr Lynne.

She started NousQ, a Singapore-based medical device company in 2021, amidst COVID. The big moment for her was when she decided that if she does not put skin in the game and take a huge leap of faith, the CLiKX device that she had been working on for 10 years with her technical co-founder, Chee Wee, would not help a single patient.

"It would remain in research publications, and it would not translate from bench to bedside. I also realised that no one would do this difficult translation as well as I can, or as committedly as I would. I almost decided overnight. I started my company with just myself

If there is meaning, you will do amazing things you thought you could never dream of. Entrepreneurship is 100x harder than you think, but what is the worst that can happen? You fail, you learn, and you go again.

and my co-founder, and we were alone with no proper office for the first year. I did not draw a CEO's pay, and Chee Wee's pay was miserable. We raised a small seed round 4 months later, allowing us to hire employee number 3 for Finance & Strategy in 2022, then number 4 for operations and quality assurance. We remain a tight-knit "Bao Gar Liao" team, frugal and thinking out of the box to create the most value for our stakeholders", said Dr Lynne while relating her experience.

Dr Lynne's hard work surely paid off as NousQ's CLiKX has emerged as the world's first and only handheld robotic ear tube surgical applicator device for treatment of Otitis Media with Effusion (OME), a condition where fluid is trapped behind the ear drum in the middle ear space chronically. CLiKX was developed at the National University of Singapore and Hospital, with novel intellectual property protected technology including a proximity indicator, sensor feedback, software programmed for different angles of ear drums, precision cutter. This allows CLiKX to insert a 1 mm ear tube onto the delicate ear drum with greater precision and speed than is currently possible, in just 1 second, with just 1 click of button and with just 1 single handheld CLiKX device.

Sharing more details about the product, Dr Lynne said, "CLiKX is for patients needing an ear tube to decompress middle ear fluid or pressure. It can be both adults and kids, for diseases of OME from immature ear tubes, allergies, sinusitis, adenoid enlargement, dive and flight injuries, head neck cancers and sudden hearing loss. Also, for hyperbaric oxygen treatment for diabetic wounds, burns and infections. The patient now walks into the clinic, and the same day, the ENT surgeon can insert a tube in 1 second under local anaesthesia (LA) ear drops or do without even the LA, as CLiKX is less painful than a vaccination."

This device is also a boon for the surgeon, as surgery can be done even in the clinic, even if there is no ownership of a costly surgical microscope. The surgeon can help 10 patients a day in the clinic with ear tube surgery, instead of waiting for an operating theatre slot availability in weeks to months. The surgeon can carry out the procedure even in low resourced settings, remote settings and even emergency settings.

Strengthening its focus on addressing the unmet healthcare needs, the company is currently raising funds, and inviting investment of $1.5 million more to close the $6.5 million round. These funds are being raised for exciting milestones of completing pivotal ASEAN trials in 2024 and HSA regulatory approval in 2025, allowing ASEAN sales, and for pivotal USA trials in 2025 and US FDA clearance in 2026.

Having achieved so much over the years, Dr Lynne is a true enthusiast with new plans to take her startup to the next level, in the future. "NousQ's mission is to develop and commercialise best in class surgical devices that address very large global unmet needs. The quest is to really focus on the patient's voice, to simplify surgeries so there is less risk, less cost, more equity, and provide a more environmentally friendly option. In 3 to 5 years, the goal is for NousQ to have cleared the various regulatory approvals with successful clinical trials, and be commercially available and selling globally. And we will continue to grow our team."

With CLiKX as its flagship product, Dr Lynn is also working on other pipeline products, and aims to make her startup a leading medical device company that continues the quest to really focus on patient's needs. BS

STARTUP
OF THE YEAR
2024

Aevice Health

Improving Access for Respiratory Healthcare

Singapore-based startup Aevice Health, incorporated in 2016, is a medtech spin-off from Nanyang Technological University (NTU) on a mission to improve asthma and chronic obstructive pulmonary disease (COPD) care through its proprietary, non-invasive remote patient monitoring platform and wearable stethoscope, the AeviceMD. Its cutting-edge technology allows for continuous monitoring and real-time disease deterioration tracking, enabling patients to receive personalised care from the comfort of their homes.

Aevice Health's flagship product is a Singapore HSA-approved and US FDA-cleared patient management platform for chronic respiratory disease management, featuring a smart wearable stethoscope suitable for all ages. The platform continuously monitors for biomarkers of interest such as wheezing and early signs of exacerbation. Using a cutting-edge algorithm to analyse heart and lung sounds, the platform continuously monitors the patient for clinical deterioration by tracking biomarkers including respiratory rate, heart rate, and wheezing.

Chronic respiratory disease is currently the third leading cause of death worldwide, with an estimate of 4 million people dying prematurely due to the disease. With millions of patients having limited access to care to assess their conditions, many patients remain unaware of risk factors which can escalate into life-threatening respiratory exacerbations. Further, wheezing is one of the key signs of respiratory diseases such as asthma, and asthma is one of the most prevalent chronic diseases of childhood. It is estimated to affect 14 per cent of children worldwide. In Singapore, the disease affects about one in five children. Many studies have shown that the chronic disease can be difficult to manage in children due to their inability to verbalise their symptoms or even realise that they are experiencing an exacerbation. This could lead to under-diagnosis, under-treatment and inadequate control of the disease.

The founder, Adrian Ang knows too well the struggles of a chronic respiratory disease patient. Growing up with asthma, Ang often worried his parents with his condition. This became a driving factor for him to find a solution to better manage his asthma. And this personal experience became the reason for Ang to create Aevice Health, alongside passionate co-founders and early supporters, with a shared vision- empowering patients with chronic respiratory diseases to take control of their health.

"I grew up with asthma as a child and experienced firsthand the challenges patients face throughout their care journey. It became clear to me that there was a significant gap in the management of asthma—particularly in the availability of

You need the mental resilience to stay committed for the long haul, even when the journey gets tough.

tools to help patients and clinicians track and manage the condition effectively. So, in 2016, together with Dr Ser Wee, my professor during my undergraduate studies, and Dr Rex Tan, my classmate at Nanyang Technological University, we co-founded Aevice Health to address this gap by creating a solution that could make a real difference, with the vision of transforming chronic respiratory care", said Ang.

He further added, "Some of the common challenges in respiratory care today are the lack of continuous and accurate monitoring for chronic conditions like asthma and COPD, particularly when patients transition to home care. This is especially so for young children and older adults, who often struggle to recognise early warning signs of exacerbations, leading to delayed medical attention. Our solution aims to address these gaps by delivering real-time insights into a patient's respiratory health, enabling timely interventions, reducing hospitalisations, and ultimately enhancing the quality of life for patients."

2023 turned out to be momentous year for the startup, having received approval from the Health Sciences Authority of Singapore (HSA); and clearance from the US Food and Drug Administration (FDA) as a Class II medical device under the 510(k) route, for its flagship medical device, the AeviceMD.

"While diseases like diabetes or heart failure have seen advancements in technology, there remains a notable lack of comprehensive solutions for respiratory conditions. Unfortunately, the patients requiring these solutions the most are often the ones facing challenges in accessing adequate care. With these clearances, we take a significant stride towards becoming the equivalent of continuous glucose monitors for diabetes, but for respiratory health, a patient-centric, affordable, and accessible solution that empowers patients to achieve a healthy recovery from the comfort of their homes", said Ang.

Later, the year 2024 saw three major developments taking place for Aevice Health. In February 2024, the startup announced a collaboration with UK-based no-code AI platform Jiva.ai, on a jointly funded co-innovation programme by Innovate UK and Enterprise Singapore aimed at creating a state-of-the-art medical AI platform to predict asthma exacerbations; In May 2024, Aevice Health secured $1 million investment from Japan-based A&D Company, to extend its US FDA-cleared and Singapore HSA-approved flagship product, the AeviceMD, into the Japanese and US markets; and in August 2024, the startup raised $7 million in Seed Plus Round led by Coronet Ventures, the Singapore-based venture unit of Cedars-Sinai Intellectual Property (CSIP) Co.

With these fresh funds and a pipeline of clinical and strategic partners globally, the startup aims to enhance product development and expand access to key markets, positioning its solutions as ubiquitous as the thermometer for home management of chronic respiratory disease.

"Our primary goal is to continue understanding the challenges faced by patients and healthcare professionals, so we can continue to innovate our solutions and maximise the value we bring to them. Over the next few years, we want to introduce our products into both Singapore and Japan, ensuring that our technologies are accessible to those who need them the most", mentioned Ang.

Seeing his startup grow in the right direction, and making remarkable achievements along the way, makes Adrian Ang very happy and proud as an entrepreneur. "While this journey has undoubtedly been challenging, it has also been meaningful. To be given the opportunity to create medical solutions that directly impact patients in need is immensely fulfilling. In fact, this strong sense of purpose is perhaps the greatest source of motivation for both me and my team every day", he pointed out. BS

ImmunoACT

Emerging Leader in Cell & Gene Therapy

Spun-out from the Indian Institute of Technology Bombay (IIT-B) in 2018, ImmunoACT is India's pioneer in the development of the country's first indigenous Cell & Gene Therapy. Dr Rahul Purwar and Dr Atharva Karulkar started ImmunoACT with a mission to provide affordable access to novel autologous Chimeric antigen receptor or CAR-T cell therapies.

Both the founders were well aware that despite the expanding burden of cancer in India, many new cancer treatments are inaccessible because of their high cost and the general lack of insurance coverage among people in India. In addition, some treatments, including CAR T-cell therapy, can cause severe side effects that must be treated in a hospital, further driving up the costs of treatment and requiring access to a nearby hospital.

A significant push in their entrepreneurial journey came in 2017 when the first CAR-T cells were approved by the United States Food and Drug Administration (US FDA). But the huge cost associated with it, i.e. approx. Rs 3-4 crore per patient, emerged as a huge challenge. Thereafter, Dr Rahul Purwar and his team set out their plans to develop an affordable treatment option i.e. Made in India and Made for India.

However, a roadblock for Dr Purwar's team was the lack of a precedent in India, without any reference, background material or techniques. Thus, they relied solely on papers published by companies and universities in the US, trying to understand and replicate their efforts.

The Society for Innovation and Entrepreneurship (SINE) at IIT-Bombay further guided the team through crucial steps, like team structure, business plan development, incorporation, audit requirements, and connecting with industry experts to evaluate their work's viability. SINE also provided an initial funding of Rs 5 lakh and a space for ImmunoACT team to set up their first lab.

In particular, Dr Rahul Purwar has been a guiding force in the startup's journey, driven by his clear vision of focusing on science for society rather than commercial success. His commitment to scientific excellence and integrity has been the foundation for the entire team, that led ImmunoACT to develop India's first domestic CAR-T cell therapy, NexCAR19, commercially approved by the Central Drugs Standard Control Organisation (CDSCO) in 2023, priced at roughly Rs 30-40 lakh

Beyond the commercial success, the social impact of our technology will be significant in India and other developing countries in providing affordable healthcare.

per patient which is just 1/10th of the international price.

India witnesses around 25,000 B-cell lymphoma patients annually, and this treatment will be accessible in multiple government and private hospitals across major cities. "CAR-T cell therapy, developed indigenously, is a type of cancer immunotherapy that involves genetically modifying T cells in a laboratory setting to enhance their ability to identify and eradicate cancer cells. This innovative therapy offers new hope to patients in India and resource- constrained nations", said Dr Purwar.

"An important aspect to consider when talking about cell and gene therapy is the accessibility of the therapies. Only 10 per cent of our population can afford these therapies. Including our cell and gene therapies in government healthcare access programmes, such as Ayushman Bharat and reduction in the high GST on oncology therapies, can make cell and gene therapies affordable", he added.

NexCAR19 is the culmination of a collaborative effort across a decade, between the IIT Bombay, and Tata Memorial Centre (TMC). Hyderabad-based Laurus Labs has been the early backer of ImmunoACT and has invested over $18 million to support the startup to scale its R&D and commercialisation efforts. Laurus Labs' investment in ImmunoACT has supported the startup in successfully creating GMP manufacturing facility along with state-of-the-art R&D facility at Navi Mumbai and for conducting Phase II study at various hospitals including Tata Memorial Hospital (TMH).

Borne from academia-industry partnership, ImmunoACT is a perfect example of private public partnership in India. On this note, Dr Purwar says, "Innovation in India and indigenous production through solid public-private partnerships (PPP) across Indian academia and industry can prove to be important for bringing down costs."

Experts at TMH who oversaw a multicentre Phase I/II pivotal clinical trial involving 60 relapsed/refractory B-cell lymphoma and leukaemia patients, reported remarkable results with an overall response rate (ORR) of approximately 70 per cent. This therapy demonstrates a favourable balance between efficacy and toxicity, making it a promising option for patients with the CD19 marker in B cells, a protein commonly associated with B-cell-related cancers such as B-cell lymphomas, acute lymphoblastic leukaemia, and chronic lymphocytic leukaemia.

Another major focus of the startup had been on retaining ownership of IP. As a result, ImmunoACT evolved its entire value chain in India, from the plasmid, to the vector, and all the way to the final CAR construct.

Moving forward, the startup is increasing the reach of the product to different states in India and across the globe; for instance, ImmunoACT has recently signed a Memorandum of Understanding (MoU) with the government in Mexico. The objective is to target countries with similar economies, like India, where there is a need for CAR-T therapies, like in Africa and Europe. ImmunoACT plans to tie up with some local pharma companies in those countries that will assist in the logistics.

As a part of its future plans, the startup is also actively engaging with stakeholders to develop CAR-Ts for non-oncology indications, to move beyond cancer, and touch upon areas such as sickle cell anaemia and other diseases, where immune cells can help in providing therapeutic effects. BS

PRODUCT
OF THE YEAR
2024

IntegriMedical™

Needle Free Injection System technology by IntegriMedical

Building the Future of Medicine

Founded in 2020, IntegriMedical embarked on a mission to revolutionise healthcare by tackling one of the most persistent challenges- the fear of needles and the discomfort of traditional injections. Guided by a shared vision, Scott McFarland, Ankur Naik, Sarvesh Mutha, and Mark Timm combined over two decades of unparalleled expertise in medical device innovation to pioneer the revolutionary Needle-Free Injection System (N-FIS).

At the forefront of innovation, the ergonomically designed N-FIS leverages cutting-edge jet-injection technology to eliminate needles, delivering medications with precision while drastically reducing pain and discomfort. This breakthrough innovation underscores IntegriMedical's steadfast commitment to patient-centric care and transformative healthcare solutions.

Sarvesh Mutha, Managing Director, IntegriMedical highlights, "Every challenge presents an opportunity for innovation. At IntegriMedical, we've embraced these obstacles to create a technology that not only addresses pain points but transforms how injections are perceived and delivered."

With state-of-the-art research and manufacturing facilities across USA, India, Hong Kong & Hungary, IntegriMedical seamlessly integrates global expertise with in-house operations to uphold the highest standards of quality, regulatory and adaptability. As a trailblazer in drug- delivery innovation, the company continues to redefine patient care, driving exceptional outcomes and shaping the future of healthcare on a global scale.

Tackling Key Challenges

Needle phobia, or trypanophobia, is a pervasive issue affecting nearly 20-50 per cent of children and 20-30 per cent of adults globally. Beyond the psychological barriers, traditional needles present significant physical risks, including needle-stick injuries and cross-contamination, compromising both caregiver safety and patient care efficiency. IntegriMedical's N-FIS provides a transformative solution, effectively addressing these challenges with precision, safety, and innovation.

IntegriMedical's N-FIS stands out as the only device of its kind featuring a robust stainless-steel body, designed for durability and reliability. Its ergonomic design ensures superior comfort and precision, catering to both

patients and caregivers. Utilising a high-pressure, spring-driven stainless-steel piston, N-FIS delivers medication uniformly in a consistent and predictable pattern.

During injection, a fine jet stream passes through a micro-orifice in the skin, ensuring precise medication delivery while minimising pain, discomfort, hazards of needles, and tissue damage, a significant improvement over traditional injection methods. N-FIS is a versatile innovation, with applications spanning vaccinations, pain management, growth hormone therapy, and in-vitro fertilization (IVF), offering a revolutionary solution that ensures precise, safe, and painless medication delivery across diverse medical needs.

Mark Timm, Chief Operating Officer, IntegriMedical emphasises, "What makes N-FIS truly remarkable is its adaptability across multiple medical applications. Whether it's a rural immunisation camp or a sophisticated urban healthcare facility, N-FIS delivers unmatched reliability & ease of use."

Healthcare faces significant challenges such as needle-stick injuries and needle phobia, affecting both patients and caregivers. Traditional needle-based injections, though widely used, often exacerbate these issues. N-FIS provides a revolutionary solution for patients with needle phobia and children requiring frequent immunisations, eliminating the fear and discomfort associated with traditional injections. Its compact, portable, and versatile design ensures its suitability across diverse healthcare settings. Backed by a US patent and regulatory approvals such as CDSCO, CE, MDSAP, and ISO 13485, N-FIS meets the highest global standards for safety and effectiveness. By addressing critical aspects like pain management, accessibility, and patient compliance, N-FIS redefines injection delivery, offering a seamless and patient-friendly experience. According to Ankur Naik, Co-founder, IntegriMedical, "We believe the future of healthcare lies in blending innovation with empathy, delivering solutions that enhance patient experiences without compromising safety or efficiency."

Growth, Milestones, Present Status, Strategy, Future Plans

IntegriMedical has achieved noteworthy milestones, with its patented technology earning widespread recognition and trust from paediatricians, general physicians, and healthcare providers in diverse settings, from bustling metropolitan hubs to remote rural areas. The growing adoption of N-FIS, fuelled by positive feedback from doctors, has facilitated its integration into leading corporate hospital chains and clinics across tier-1 and tier-2 cities. Globally, the N-FIS technology has witnessed remarkable success, achieving over 45,000 needle-free injection administrations in a short span signalling a promising trajectory of rapid growth and transformative impact in healthcare. Recently, Hungary's Heim Pál National Paediatric Institute embraced N-FIS, revolutionising care for over 4,000 haematology-oncology patients by dramatically reducing pain and anxiety associated with traditional injections. Aligned with the World Health Organization's (WHO) recommendation for safe injection technologies and its call for governments to adopt such advancements, N-FIS holds immense potential to transform healthcare practices worldwide, setting a new benchmark for patient comfort and safety.

Looking ahead, IntegriMedical is on track for rapid growth, fuelled by its most significant milestone, a strategic partnership with 'Serum Institute of India', world's largest vaccine manufacturer. This collaboration will play a key role in expanding the reach of N-FIS, especially in vaccine delivery.

The company is also focused on broadening its portfolio of regulatory approvals to enter international markets and collaborate with global foundations to integrate needle-free systems into national immunisation programmes. IntegriMedical will continue to push the boundaries of innovation, ensuring that its technology evolves to meet the ever-changing demands of healthcare providers and patients, shaping the future of patient care on a global scale, further solidifying its commitment to advancing healthcare accessibility.

The global needle-free injection system market is on a remarkable growth trajectory, projected to expand at an impressive CAGR of 14.16 per cent and soar to an astonishing $27.65 billion by 2028. The rising prevalence of chronic diseases, the lasting impact of global pandemics, the increasing demand for self-injection devices, and rapid advancements in medical technology are driving unprecedented growth in this market. With its cutting-edge innovations, IntegriMedical is uniquely positioned to lead and excel in this dynamic and rapidly evolving landscape. BS

BioSpectrum Asia Excellence Awards 2024

JURY AWARDS

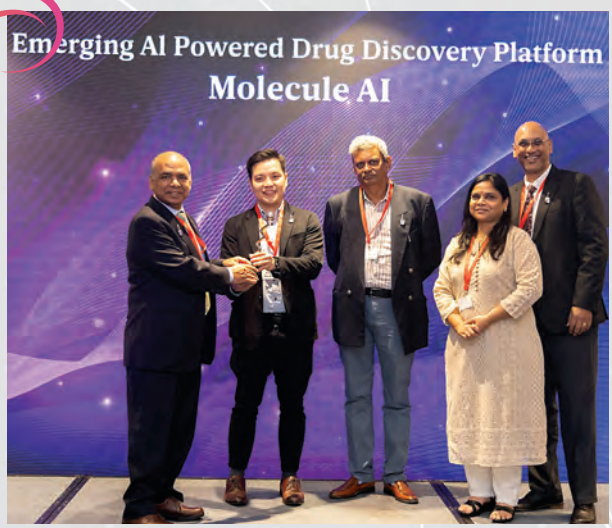
(Extreme left) Ravindra Boratkar, Publisher and Managing Editor, BioSpectrum Asia and (from extreme right) Dr Satya Dash, President-Strategy, Bigtec, Founding Head- Strategy, BIRAC, Government of India; Ka Mung, Deputy Director, Enterprise Singapore and Dr Dario Heymann, Chief Research Officer, Galen Growth Singapore, AI Office, SingHealth presenting the trophies to Jury Award winners.

BioSpectrum Asia Excellence Awards 2024

INDUSTRY SEGMENT AWARDS

Dr Milind Kokje, Chief Editor, BioSpectrum Asia presenting the Industry Segment Awards to all the winners.

BioSpectrum Asia Excellence Awards 2024



INDUSTRY SEGMENT AWARDS

Dr Milind Kokje, Chief Editor, BioSpectrum Asia presenting the Industry Segment Awards to all the winners.

Singapore Turns Tech Beacon with Revolutionary Pharma Manufacturing & Digital Transformation

« **Venkatesh Arunachalam,** General Manager of Life Science Manufacturing, Cognizant

In the current pharmaceutical manufacturing environment, linking information technology (IT) with operational technology (OT) systems is increasingly vital. This integration enables a seamless exchange of information between these two historically separate domains – one focused on data management and the other on overseeing physical operations. This enables various aspects of the manufacturing process to gain insights from one another to boost efficiency and refine strategic decision-making. Digital transformation is essential for directing companies through the complexities of implementation and ensuring a seamless shift to a data-driven, digitally optimized manufacturing landscape.

Singapore has been viewed as a global hub in Asia for many years, and has strived to stay ahead of the curve when it comes to technology adoption. The city-state has undergone continued transformation, emerging as a global hub for digital manufacturing, notably in the pharmaceutical industry.

This evolution into a formidable pharmaceutical manufacturing powerhouse is characterised by a remarkable growth trajectory driven by substantial investments from international leaders and innovative local enterprises. The market is poised to reach SG$2.2 billion ($1.7 billion) by 2026, reflecting the resounding success of governmental initiatives, notably the establishment of the Biopolis research hub and the Experimental Drug Development Centre (EDDC).

Prominent global pharmaceutical players have also invested in the city-state. AstraZeneca, for instance, announced a significant $1.5 billion investment to construct its first end-to-end manufacturing facility for antibody-drug conjugates (ADCs) in Singapore. Additionally, AbbVie disclosed a $223 million expansion of its existing Singapore manufacturing facility, augmenting its capacity for biologics drug substance production.

In today's highly interlinked manufacturing landscape, data-driven insights play a critical role in creating efficient production processes, ensuring compliance with regulatory standards, and fostering innovation. As Singapore's pharmaceutical sector continues to evolve, these insights will prove crucial for sustained growth. However, leveraging data-driven insights presents significant challenges, such as the need to seamlessly integrate diverse systems both within new sites in Singapore and between existing hubs overseas.

Why Singapore is the go-to destination for pharma manufacturers

Singapore's appeal as a pharmaceutical manufacturing hub is influenced by its politically stable environment, which fosters confidence and predictability for investors, as well as its strategic location in the Asia-Pacific (APAC) region, supporting access to key markets nearby.

The government has also nurtured a business-friendly atmosphere, with streamlined regulations and competitive corporate tax rates to encourage investment and growth. For instance, robust intellectual property protection safeguards the rights of innovators, promoting research and development. In addition, the government provides active support through financial incentives, research grants and industry partnerships to foster a collaborative ecosystem that fosters innovation.

Singapore's strategic investment in cultivating a highly skilled workforce and cutting-edge research capabilities, coupled with robust collaborations between industry and academia, has solidified its standing as a global leader in pharmaceutical innovation. All of this has propelled Singapore

to the forefront of the pharmaceutical landscape, making it an attractive destination for established companies and emerging innovators alike.

Enhancing manufacturing efficiency in new markets through IT/OT convergence

In today's pharmaceutical manufacturing landscape, it's more important than ever to connect information technology (IT) with operational technology (OT) systems. This integration facilitates the smooth flow of data between these two traditionally distinct realms - one responsible for data management and the other for monitoring physical operations. This allows different facets of the manufacturing process to learn from each other to enhance efficiency and improve strategic decision-making.

There are clear benefits of this IT/OT convergence for life sciences companies seeking to enter new markets, such as Singapore. Aggregating data from various sources across the manufacturing process can provide a real-time, holistic view of operations and allow the alignment of global production with local manufacturing data, ensuring consistency and compliance with regional regulations. Integrating IT/OT systems can also deliver automation benefits for process optimisation and efficiency.

Quality control and regulatory compliance can also be enhanced. Data flowing from one system to another must be of high quality, in terms of accuracy and usefulness. IT/OT convergence can enable real-time data monitoring to ensure it meets the organisation's needs.

In addition to all of this, IT/OT integration can facilitate the traceability of raw materials and finished products once they leave the manufacturing site – an important aspect of regulatory compliance in many markets. Data analysis can support companies in optimising their future supply chains by improving demand forecasting, which can cut production waste.

Accelerating growth through strategic technology partnerships

When entering the Singaporean pharmaceutical market, connectivity is crucial to enhancing quality, compliance, innovation and collaboration throughout the value chain. Digital transformation is the key to achieving this connectivity.

Beyond digitising existing processes, digital transformation in life science manufacturing involves leveraging technologies like automation, artificial intelligence (AI), cloud computing and advanced analytics to optimise operations. Collaborating with digital transformation partners is essential for pharma companies aiming to navigate the complexities of this process.

Driving the collaborative approach forward is the concept of an Automation Engineering Office (AEO), a service digital transformation partners can leverage to help their clients ensure the efficient functioning of their manufacturing plants. When designing and building a manufacturing plant, life science companies will often rely on engineering, procurements and construction (EPC) contractors to undertake construction works. These contractors are not specialists in IT, OT and digital systems. This lack of specialised knowledge can lead to insecure systems, poor integration and difficulties in meeting regulatory requirements. With teams specialising in designing, configuring, commissioning and qualification of all IT, OT (GMP and non-GMP), an AEO can team up with EPC contractors to ensure seamless integration of digital capabilities into a facility from its inception. For pharmaceutical companies, this comprehensive approach can optimise efficiency, minimise risks and expedite time-to-value.

Partnering with digital transformation experts can speed up time-to-value by providing expertise and comprehensive solutions that streamline data integration, system harmonisation and technology adoption, enabling faster implementation and return on investment.

Embracing these partnerships and prioritising connectivity and automation is also helping to establish Singapore's life science industry as a global leader in advanced manufacturing. In streamlining processes and optimising efficiency, Singaporean life science companies are enhancing productivity and contributing significantly to the nation's economic growth, solidifying its position as

a global leader in the field. This proactive approach not only attracts investment from companies seeking to leverage cutting-edge infrastructure and expertise, fueling further growth within the sector but also attracts top talent and fosters a thriving ecosystem of knowledge and expertise.

Driving this collaborative approach forward is the concept of an Automation Engineering Office (AEO), a service digital transformation partners can leverage to help their clients ensure the efficient functioning of their manufacturing plants. When designing and building a manufacturing plant, life science companies will often rely on engineering, procurements and construction (EPC) contractors to undertake construction works. These contractors are not specialists in IT, OT and digital systems. This lack of specialised knowledge can lead to insecure systems, poor integration and difficulties in meeting regulatory requirements. With teams specialising in designing, configuring, commissioning and qualification of all IT, OT (GMP and non-GMP), an AEO can team up with EPC contractors to ensure seamless integration of digital capabilities into a facility from its inception. For pharmaceutical companies, this comprehensive approach can optimise efficiency, minimise risks and expedite time-to-value.

How partners can help harness the power of new data technologies

Strategic technology partners can support life sciences companies entering Singapore and other new markets to realise the benefits of IT/OT convergence by helping them access an array of cutting-edge digital transformation technologies.

A number of such technologies are already changing the manufacturing landscape. For example:

- **Unlocking new levels of efficiency with AI:** Leveraging the capabilities of machine learning algorithms, AI is revolutionising the pharmaceutical manufacturing industry. AI is not only enabling predictive maintenance and anomaly detection but also optimising processes and facilitating the development of personalised therapies. This transformative technology unlocks new frontiers of efficiency, ensuring higher-quality products and fostering patient-centric innovation in the pharmaceutical sector.
- **Real-time monitoring of DCS and MES empowering informed decision-making:** Integrated Distributed Control Systems (DCS) and Manufacturing Execution Systems (MES) networks offer real-time monitoring and data-driven insights that span the entire production process. Through this, informed decision-making is facilitated, resource allocation is optimised and strict quality and regulatory standards are consistently adhered to.
- **Boosting process control through Level 2 (L2) automation:** Through the centralisation of control systems and the coordination of various devices, L2 automation elevates process control and efficiency, thereby diminishing the need for manual intervention and reducing human error. This transition toward automation not only enhances productivity but also establishes the foundation for a more adaptable and responsive manufacturing landscape, fostering agility and responsiveness.
- **Breaking down silos with cloud platforms:** Cloud platforms empower seamless global collaboration and expedite innovation by providing scalable and flexible solutions for data storage, processing and analysis.

To fully realise the potential of these technologies in the dynamic life science market of Singapore, careful planning and meticulous execution are essential. This ensures data integrity, cybersecurity and the seamless convergence of IT and OT. Digital transformation specialists play a crucial role, guiding companies through the intricacies of implementation and facilitating a smooth transition toward a data-driven, digitally enhanced manufacturing environment. This strategic collaboration not only minimises risks but also accelerates the realisation of the transformative benefits offered by these technologies, propelling companies toward sustained success.

Data is key to a bright future for the pharma industry

Singapore is strategically positioning itself for sustained growth by making substantial investments in cutting-edge technologies such as AI, machine learning and automation. These investments, combined with ongoing efforts to nurture a collaborative ecosystem among industry, academia and the government, are fostering an environment conducive to innovation. This ensures that Singapore maintains its position as a global leader in pharmaceutical manufacturing.

In this undertaking, technology partners will continue to play a vital role. By offering holistic digital transformation support, they can empower pharmaceutical companies to overcome complex challenges, enhance operational efficiency and foster innovation. BS

Hong Kong Baptist University announces collaboration for new medical school proposal

Hong Kong Baptist University (HKBU) has announced the formation of a strategic partnership as part of its bid to establish a new medical school. This new medical school initiative aims to address the growing demand for medical education and healthcare professionals in Hong Kong and the Greater Bay Area (GBA). By collaborating with leading medical experts and partners worldwide, HKBU seeks to create a world-class medical school that will landmark

Hong Kong as an international hub for medical education, clinical training, and research and innovation. Following the announcement in November to bid for the new medical school, HKBU has formed a strategic alliance with The First Affiliated Hospital, Sun Yat-sen University (FAH-SYSU). HKBU and FAH-SYSU will engage in strategic cooperation in areas such as innovative research and development, jointly establishing a medical innovation and training centre to promote collaboration in the healthcare system and nurture talents in Hong Kong and the GBA.

Korea's Newbase introduces VR medical education training platform Medicrew

Newbase, a leader in metaverse-based medical education platform, has announced the launch of its new product, 'Medicrew', a platform designed to provide customised virtual reality (VR) education tailored to the clinical competency of healthcare professionals. Leveraging its expertise in international markets, cultivated through projects since 2023, Newbase plans to actively expand into the global market starting in 2025. Medicrew is a VR-based medical simulation training platform that integrates artificial intelligence (AI)-powered virtual patients, spearheading digital innovation in medical education. The platform features a three-step learning module customised to the skill level of healthcare professionals and supports learning in both VR and mobile environments. The introduction of 'Medicrew' has enhanced the quality of training for new nurses, reduced turnover rates, and achieved high levels of satisfaction at participating hospitals.

Max Healthcare Foundation launches 2nd edition of medical scholarship programme in India

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

Amgen India ropes in Naveen Gullapalli as Managing Director

Amgen has announced the appointment of Naveen Gullapalli as Managing Director of Amgen India. Gullapalli will lead the Amgen India Technology and Innovation site in Hyderabad leveraging his extensive experience leading global operations and adjoining functions across the pharmaceutical, finance and technology industries. Gullapalli joins Amgen from Novartis where he led the development of their Global Centre in Hyderabad and their network of six centres across the world where he was instrumental in driving strategic growth and innovation for the enterprise.

His deep experience in developing specialised skills and enabling business transformation aligns closely with Amgen's vision for its Hyderabad site as a global technology and innovation hub. Amgen India is key to furthering the company's global vision of unlocking the convergence of biotech and tech to accelerate innovation and help meet the needs of a globally aging population. Gullapalli's wealth of experience and strategic leadership will drive the success of this new site.

George Clinical names Tony Proctor as Chief Financial Officer

George Clinical, a leading global clinical research organisation in Singapore, has announced the appointment of Tony Proctor, as Chief Financial Officer (CFO). With over 25 years of financial leadership experience, Proctor brings a wealth of expertise in driving operational excellence, strategic planning, and transformational growth. He has held CFO and executive leadership roles at Lexitas, Parexel, and Syneos Health. He was a key architect of organic revenue acceleration initiatives at these organisations, implementing best-in-class financial disciplines, major organisational and systems upgrades, and transformative M&A processes. His leadership has consistently delivered measurable results, including driving strategic growth initiatives and optimising financial operations on a global scale.

Microbio appoints Paul Brennan as Chair of the Board

Microbio Ltd, the Australian pathogen diagnostics company specialising in innovative molecular diagnostic solutions, has appointed Paul Brennan as Chair of the Board. Brennan brings extensive global experience as a Non-Executive Director and biopharmaceutical industry leader. Currently, he serves as Non-Executive Chair of Immuron, a biopharmaceutical company known for its gastrointestinal health product Travelan, which is sold across Australia, Canada, and the US.

In an executive career spanning more than 35 years, he has held global senior leadership positions, including serving as CEO of Polynovo from 2015 to 2021. During his tenure, he transformed the company from a valuation of $30 million to a peak market capitalisation of $2 billion, establishing Polynovo as a highly successful Australian medical device company. He has also held senior leadership positions at prominent global organisations such as Smith & Nephew and Ansell.

Kiran Mazumdar-Shaw receives 'Jamsetji Tata Award' for pioneering biosciences movement in India

Biocon Group Chairperson Kiran Mazumdar-Shaw has been conferred the prestigious Jamsetji Tata Award by the Indian Society for Quality (ISQ) for pioneering the biosciences movement in India and serving patients in India and across the world through an unwavering focus on quality, while leading Biocon to a preeminent global position. Kiran Mazumdar-Shaw is a pioneering biotech entrepreneur, a healthcare visionary, a global influencer, and a passionate philanthropist. As founder of Biocon, an innovation-led global biopharmaceuticals enterprise, her vision and work have drawn global recognition both for Indian industry and her company. The impact she has made as a leading woman in science has made her a role model globally. She is committed to equitable access to healthcare through affordable innovation as she pursues a path of making a difference to billions of lives globally. Kiran Mazumdar-Shaw's inspiring

achievements have earned her several coveted titles and awards, both national and international. She has been recognised with two of India's highest civilian honours, the Padma Shri (1989) and the Padma Bhushan (2005). She has been conferred with the Order of Australia, Australia's highest civilian honour, in 2020 and appointed Knight of the National Order of the French Legion of Honour in 2016.

Lotte Biologics hires James Park as new CEO

South Korea-based Lotte Biologics has appointed James Park, former Chief Executive Officer (CEO) of GC Cell, as its new CEO. Park earned a bachelor's degree in chemical engineering from the University of California, Davis, and a master's degree in industrial engineering from Columbia University. He has worked at global pharmaceutical companies such as Merck and Bristol-Myers Squibb (BMS), served as Vice President and Head of the Global Sales Center at Samsung Biologics, and until recently was the CEO of GC Cell, a company specialising in cell and gene therapy (CGT). Notably, during his tenure at BMS, he participated in due diligence in the field of pharmaceutical process development and quality control (Chemistry, Manufacturing and Controls; CMC) from preclinical stages to commercialisation, overseeing business development including licensing in/out and mergers and acquisitions. At Samsung Biologics, he successfully secured contract orders with various global companies.

Iskra Reic steps in as new Head for AstraZeneca's China biz

British pharmaceutical firm AstraZeneca has announced the appointment of Iskra Reic as Executive Vice President (EVP), with responsibility for overall strategy and driving sustainable growth across the broad region which encompasses China, Asian and Eurasian markets, Middle East & Africa, Latin America, Australia & New Zealand. Iskra succeeds Leon Wang who is on extended leave from the company while under investigation in China. Having joined the company in 2001, Iskra has held leadership positions across Central & Eastern Europe, Eurasia, Middle East & Africa. She was appointed EVP for Europe & Canada in 2017 and joined AstraZeneca's senior executive team. Most recently, Iskra launched the company's vaccines and immune therapies unit, successfully establishing it at the forefront of a new and exciting era of disease prevention.

“We are dedicated to helping people of all ages see brilliantly”

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Jason Hoffe,
Vice President,
APAC Vision Care,
Alcon

The global leader in eye care for over 75 years, **Alcon Inc.** strives to help eye care professionals strengthen their practices and serve patients better, improving visual health worldwide. Through its innovative eye care portfolios, Alcon has established operations in 56 countries and serves patients in 140 countries. **Jason Hoffe, Vice President, APAC Vision Care, Alcon,** responsible for driving the vision care business in the region shares opportunities exist for the company and new developments in eye healthcare that are cause for optimism for patients in the region.

What are some unmet needs impacting patients' eye health in APAC, and what opportunities exist for Alcon to address these issues?

The eye health landscape in APAC has changed significantly with increased digital device use, contributing to dry eyes, eye strain, and myopia. Myopia prevalence is projected to reach 66 percent in Asia Pacific (APAC) and 65 percent in East Asia by 2050. APAC's aging populations mean a rise in cataract incidences, a leading cause of blindness in developing countries. Access to eye care, especially in remote areas remains limited, and many people do not receive routine eye exams needed for early detection and intervention.

Alcon, with over 75 years of experience, is dedicated to addressing eye health. We offer a comprehensive portfolio in two key areas:

- The **Surgical** business, focusing on cataract, vitreoretinal, refractive, and glaucoma surgery.
- The **Vision Care** business that I am responsible for comprises contact lenses and ocular health products for dry eye and allergies.

Alcon also provides training and technical support for eye-care professionals ensuring that patients receive the highest quality care.

Why do you think eye diseases are often overlooked compared to other chronic health conditions?

Unfortunately, eye health doesn't get the same attention as conditions like heart diseases. Despite a genetic predisposition to myopia among Asians, gradual effects and acceptance of deteriorating eyesight as part of aging reduce the urgency for treatment. Vision loss profoundly affects quality of life and has substantial economic repercussions. In 2020, an estimated $410.9 billion in global economic productivity was lost due to reduced employment among people with vision loss. Given the disproportionate burden of vision loss in the APAC, and that 90 percent of vision impairment is treatable or preventable, addressing this issue is of paramount importance.

Alcon collaborates with stakeholders across the eye health spectrum to ensure accurate diagnosis and awareness of diseases. We constantly gather feedback from our customers and innovate our products accordingly. By combining advanced solutions with educational initiatives, Alcon aims to ensure that eye health gets the attention it deserves.

How is Alcon adjusting its footprint in APAC to meet growing regional demand for access to better eye care?

Alcon is well-positioned to address the growing demand for eye care in APAC through a combination of investment in innovation, local manufacturing, and educational initiatives. In 2023, we invested $828 million in R&D to support advancements in clinical research, optical design, material and surface chemistry, and automation, ensuring that Alcon remains at the forefront of eye care technology.

We offer a comprehensive ecosystem of connected eye care solutions for professionals, including the **Water Surface Lens (WSL) technology** designed to provide an outstanding wearing experience and address two of the biggest reasons patients drop out of lenses; poor vision and poor comfort and **Advanced Technology Intraocular Lenses (ATIOLs),** which can offer advanced solutions to cataract patients. Alcon developed a digital application, which streamlines contact lens reorders and automates patient communications, improving convenience for

both patients and practitioners. The app was first rolled out in Australia in March 2024 and will continue in phases across APAC. Alcon operates 17 manufacturing facilities, including locations in Malaysia, Indonesia, and two in Singapore. These state-of-the-art facilities enable Alcon to deliver high-quality, locally produced innovations such as **PRECISION1®** contact lenses, meeting the specific needs of the APAC region.

Our educational initiatives, such as the **Phaco Development (PD) program** focus on establishing sustainable cataract and patient care services in underserved communities. It has trained over 6,300 professionals globally and facilitated around 10.6 million Phaco procedures.

What more needs to be done to advocate better eye health in this region?

Addressing eye health challenges in APAC requires collaboration with different stakeholders. The **Alcon Experience Academy** provides world-class training for Eye Care Professionals (ECPs), including doctors, staff, and students. Each year, we train over 1,000 doctors at our **Alcon Experience Centers** through in-person and remote learning, providing flexible, tailored training. Alcon also collaborates with local and regional partners to enhance access to eye care. We recently launched India's first **Global Center of Excellence** in partnership with Aravind Eye Care System, aimed at building local expertise and expanding its reach.

How is Alcon adapting its innovation direction and pipeline to cater for growing eye health trends across APAC?

To address growing eye health challenges in APAC, Alcon is focusing on Digital Device Dryness. When concentrating on digital devices, people blink 60 percent less than usual causing ocular surface dryness, known as Digital Device Dryness. It brings symptoms of discomfort, redness and blurry vision which are of particular concern for contact lens wearers. Approximately 85 percent of wearers experience at least one ocular dryness-related symptom, impacting their quality of life.

Our contact lens portfolio (such as **TOTAL30®,** and **PRECISION1®**) features innovative solutions with WSL technology, aimed at helping patients combat these symptoms. In addition, Alcon offers the **Systane®** family of eye drops, commonly recommended for relief from dry eyes.

What is Alcon's approach to optimizing the accuracy and efficiency of eyecare professionals be it optometrists, ophthalmologists or surgeons?

Alcon supports ECPs by investing to advance eye care technology and provide robust training across the region. Contact lens innovations such as the **WSL portfolio for Astigmatism** features a proven **PRECISION BALANCE 8|4®** lens design, providing a stable lens-wearing experience. Meanwhile, **PRECISION1®** features **SMARTSURFACE® Technology** and provides long-lasting comfort and optimal performance throughout the day. Alcon further supports ECPs with the **Alcon Vision Suite** in the surgical area; it is an integrated ecosystem of products, digital innovation, and services that enable ECPs to seamlessly power their practices.

How does APAC's diversity and differing healthcare needs influence how Alcon develops and delivers its products for patients and HCPs?

The diversity of APAC populations and their unique healthcare needs influence how we innovate products. Extensive market research helps us gain insights into the specific eye health challenges faced by different communities. Alcon offers myopia management solutions, such as the **DAILIES TOTAL1®, TOTAL30®, and PRECISION1®** contact lenses for countries with high incidences of myopia. Further, Alcon collaborates strongly with HCPs through **Alcon Experience Academy** to ensure effective delivery of these products. Alcon engages with patients through awareness campaigns, educating them about eye care and the importance of regular eye examinations. In line with **Dry Eye Awareness Month,** Alcon launched an infographic in Korea linking Digital Device Dryness and the importance of blinking to intrigue patients to learn more about their own eye health management.

As an innovator company, what are some developments in eye healthcare that are cause for optimism for patients in the region?

Alcon is driving significant advancements in eye care by expanding our **WSL** portfolio to better meet the needs of contact lens wearers. And we are addressing the growing concern of Digital Device Dryness in the APAC region by empowering ECPs and patients to manage digital eye strain. Our acquisition of **Aerie Pharmaceuticals** strengthens our presence in the ophthalmic pharmaceutical sector, adding a promising pipeline for dry eye conditions.

We are also committed to improving access to essential eye care for children in underserved communities through initiatives like the **Alcon Children's Vision Program.**

These innovations and initiatives reflect our commitment to improving eye health outcomes and we are dedicated to helping people of all ages see brilliantly. ■

World-first cream to treat skin cancer moves closer to reality

A topical cream to help prevent and treat skin cancers in organ transplant patients is a step closer to development. The world-first treatment, currently being developed by University of Queensland (UQ) researchers in Australia, has received $344,000 in funding from the National Foundation for Medical Research and Innovation to help advance the cream through pre-clinical development. Associate Professor James Wells, from UQ's Frazer Institute, said the

cream contained a novel drug that prevented the formation of skin cancer, which was discovered and developed in partnership with UniQuest's small molecule drug discovery initiative, Queensland Emory Drug Discovery Initiative (QEDDI). The drug is the only one of its kind and has the potential to prevent the formation and also treat early stages of skin cancer in organ transplant patients. Currently there are no FDA-approved drugs to treat squamous cell carcinomas (SCCs) in the patients, so skin cancers must be managed with regular medical checks and removals over a person's lifetime until one becomes too advanced and metastasises.

Korea suggests novel non-invasive brain surgery for lasting relief from OCD

A group of researchers from Korea College of Medicine has demonstrated that a novel non-invasive bilateral capsulotomy called magnetic resonance-guided focused ultrasound (MRgFUS) capsulotomy is efficacious and safe in treating refractory obsessive-compulsive disorder (OCD) for up to two years. MRgFUS capsulotomy non-invasively and precisely ablates tissues in the brain region of interest. However, the sustained efficacy of this treatment option was unclear. MRgFUS capsulotomy is an efficacious and safe treatment option for refractory OCD, with high patient satisfaction, even at 10 years, establishing its lasting positive effects in patients. The results from the clinical trial also imply the potential role of MRgFUS in managing other common psychiatric diseases, such as refractory depression, due to its simplicity and safety.

HKBU's automated multiplex diagnostics system receives WHO recommendation

An Automated Multiplex Diagnostics System developed by Professor Terence Lau, Interim Chief Innovation Officer of Hong Kong Baptist University (HKBU), has been recommended in the 2024 Compendium of Innovative Health Technologies for Low-resource Settings published by the World Health Organization (WHO), as an innovative technology with the potential to contribute positively to health systems in low- and middle-income countries. The System can fully automate conventional laboratory-based PCR (polymerase chain reaction) processes in an all-in-one system with three elements: an analytical machine, a microfluidic reagent cartridge, and software. Its proprietary design enables the simultaneous detection of 42 respiratory pathogens, including 28 viruses, 11 bacteria and 3 fungi, in less than 1.5 hours without the need for a resource-intensive laboratory, multiple equipment, or specially trained technicians while maintaining superior sensitivity and specificity. The system also provides advantages in terms of costs, turnaround time, and the ability to analyse more targets at once. It is selected as one of the 21 highlighted health technologies in the Compendium in the category of prototypes.

Study in NZ finds vulnerable weakness in drug-resistant TB

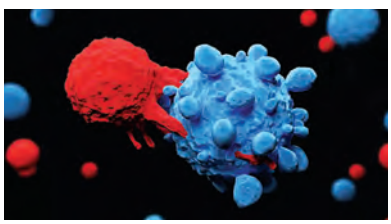
A University of Otago-led study in New Zealand (NZ) has found a highly vulnerable weakness in drug-resistant Mycobacterium tuberculosis, offering a new way to kill them. In the study, published in Nature Communications, researchers developed a genetic platform to identify biological pathways in a drug-resistant strain of Mycobacterium tuberculosis that are highly sensitive to inhibition. Whilst this work specifically focuses on Mycobacterium tuberculosis – the leading global cause of infectious disease morbidity, overtaking COVID-19 in 2024 – this technology can be applied to other drug-resistant pathogens. There are often limited treatment options for people infected with drug-resistant pathogens and there is a very real threat that they could affect the success of many otherwise standard medical procedures. Novel developments, such as those in this study, are needed to deal with them.

IIT Madras releases most detailed 3D high-resolution images of human foetal brain

Indian Institute of Technology Madras (IIT-M) has become the first research organisation in the world to release the most detailed 3D high-resolution images of the foetal brain. This pioneering work from the Sudha Gopalakrishnan Brain Centre of IIT Madras pushes the frontiers of Brain Mapping Technology and places India in the global league of brain mapping science as this is first-of-its-kind work anywhere in the world. For the first time globally, 5,132 brain sections have been captured digitally using cutting-edge Brain Mapping Technology developed by Sudha Gopalakrishnan Brain Centre in the Institute. This work will advance the field of neuroscience and potentially lead to the development of treatment for health conditions affecting the brain. This monumental work is the first time such advanced human neuroscience data has been produced from India. The project was done at less than 1/10th of the costs in Western Countries. The research was undertaken by a multidisciplinary team at IIT Madras with researchers from India, Australia, US, Romania and South Africa, and medical collaborations with Chennai-based Mediscan Systems and Saveetha Medical College Hospital.

Singapore develops novel plug-and-play test to evaluate T-cell immunotherapy effectiveness

A novel test developed by Duke-NUS researchers in Singapore enables real-time monitoring of T cells that have been engineered to fight cancer, after re-introduction into the body of a cancer patient. This simple and innovative test provides clinicians with the ability to track the function of these cancer-fighting cells over the course of the treatment. This plug-and-play concept can help accelerate the translation of new T-cell-based therapies from the laboratory to patient bedside.



The research team has already demonstrated that the test can be adapted for use in numerous viral infections, but this is their first foray into cancer therapies, where the test can be harnessed for T-cell receptor (TCR) engineered T cells, as well as chimeric antigen receptor (CAR) T-cell therapies. In collaboration with Lion TCR Pte Ltd, the test has been deployed in a Hepatitis B virus-TCR T-cell therapy clinical trial, called the SAFE-T-HBV trial, evaluating the effectiveness of a novel therapy in two patients and demonstrating the test's impact on improving the precision of immunotherapy outcomes. The team is now looking to advance this proof-of-concept through larger clinical studies.

VectorBuilder, Sartorius sign cooperation agreement to advance biopharma innovation

VectorBuilder, a global leader in end-to-end gene delivery services, and Sartorius, a leading international partner in life science research and the biopharmaceutical industry, have recently announced a strategic cooperation agreement. The collaboration will focus on gene vector and mRNA bioprocess solutions and services, accelerating the development and clinical translation of innovative biopharmaceutical projects. Building on years of successful collaboration, Sartorius and the VectorBuilder have agreed to further expand the scope of their partnership. The new cooperation will cover various areas, such as co-development of innovative downstream processes for cell and gene therapies; further optimisation of the development platform and commercial production of GMP-compliant mRNA, plasmid and viral vectors; partnering to support the achievement of sustainability goals; and regular exchange as well as training of talent from both companies. Moreover, VectorBuilder will be a developing partner for applications in the field of the new modalities.

QIAcuity digital PCR platform expands into clinical space across Australia & New Zealand

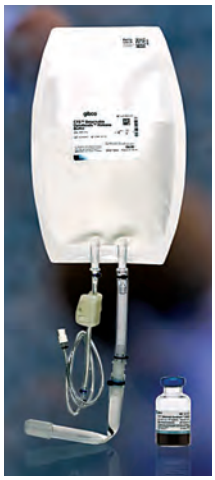
Qiagen has announced the inclusion of the QIAcuityDx digital PCR System in the Australian Register of Therapeutic Goods (ARTG). This pivotal addition to Qiagen's portfolio is now expanding digital PCR into clinical diagnostics, enabling labs to harness its precision and efficiency for applications in oncology and infectious diseases. The instrument and accessories are IVDR-certified. QIAcuityDx can streamline clinical oncology testing by providing highly precise, absolute quantitation of target DNA and RNA, supporting applications with less invasive liquid biopsies. These capabilities make it an ideal tool for monitoring cancer progression and complementing routine cancer diagnoses, which are typically performed using Next Generation Sequencing (NGS). Qiagen plans to expand the menu on the QIAcuityDx-System with a new BCR::ABL assay for oncohaematology in late 2025. The platform offers immediate access to QIAGEN's full range of research-use products via GeneGlobe.

Parse Biosciences announces expansion of Evercode BCR product line

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

Thermo Fisher unveils CTS Detachable Dynabeads to enhance cell therapy development

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



Agilent introduces innovative Mito-rOCR assay kit for mitochondrial research

Agilent Technologies Inc. has announced the new Mito-rOCR Assay Kit. This easy and streamlined end-to-end solution makes sophisticated analysis of mitochondrial function available to researchers of all skill levels. With this cost-effective and versatile kit, researchers can easily incorporate functional assessment of relative mitochondrial respiration into their cell physiology and disease pathology studies. Mitochondria are central to energy production processes that drive cellular activity, and mitochondrial dysfunction is linked to numerous diseases and conditions. The Mito-rOCR assay enables more researchers to explore this crucial aspect of biology with accuracy and ease. The assay can be used with various compatible fluorescent plate readers and multimode imagers that meet its requirements for sensitivity, detection capabilities, and environmental control. The BioTek Cytation series of fluorescence plate readers and multimode imagers are ideal for the Mito-rOCR assay. Their advanced software allows them to handle various applications, maintain optimal conditions, and automate processes, making them reliable and adaptable for different research needs.

Singleron joins forces with Tomy Digital Biology to transform single-cell analysis in Japan

Singleron Biotechnologies, a leader in single cell analysis solutions, has announced a new distributor partnership with Tomy Digital Biology Co. Under this agreement, Tomy will serve as Singleron's exclusive distributor in Japan, providing access to Singleron's comprehensive range of single-cell analysis products and services. Tomy will distribute Singleron's innovative offerings, which cover tissue preservation and dissociation, multi-omic single-cell library preparation, and advanced data analysis software and services. This partnership will help researchers streamline their single-cell analysis workflow from sample to publication-ready data. Japan is one of the largest single cell markets in Asia. In addition to a robust single-cell analysis platform, Singleron's solutions address multiple challenges in the market, including time-consuming and labour-intensive sample preparation as well as the need for bioinformatics support for downstream data analysis.

Concerted Effort to End TB Scourge by 2030

Approximately 8.2 million people were newly diagnosed with tuberculosis (TB) in 2023 – the highest number recorded since the World Health Organization (WHO) began global TB monitoring in 1995. This represents a notable increase from 7.5 million reported in 2022, placing TB again as the leading infectious disease killer in 2023. The WHO's Global Tuberculosis (TB) Report 2024 highlights mixed progress in the global fight against TB, with persistent challenges such as significant underfunding. While the number of TB-related deaths decreased from 1.32 million in 2022 to 1.25 million in 2023, the total number of people falling ill with TB rose slightly to an estimated 10.8 million in 2023.

With the disease disproportionately affecting people in 30 high-burden countries, India (26 per cent), Indonesia (10 per cent), China (6.8 per cent), the Philippines (6.8 per cent) and Pakistan (6.3 per cent) together accounted for 56 per cent of the global TB burden. According to the report, 55 per cent of people who developed TB were men, 33 per cent were women and 12 per cent were children and young adolescents.

Over 3.8 million people were initiated on TB treatment in the WHO South-East Asia Region in 2023, the highest ever and nearly 1.3 million more than in 2020 impacted by the COVID-19. However, the region continues to account for a disproportionate 45 per cent of the global TB burden with an estimated over 5 million people developing the disease in 2023, and over half of TB deaths globally in 2023.

Nearly 1.5 million people have received TB preventive treatment. However, the coverage remained low with only 9 per cent people living with HIV and less than a quarter for household contacts of bacteriologically confirmed TB patients, receiving preventive treatment. The available funding for TB in the region reached $1.1 billion in 2023, increasing steadily by 70 per cent through domestic sources, but a huge gap of nearly $2 billion per year persists for implementation of a comprehensive strategy to end TB in the region. Though countries in the region have been making considerable efforts, the huge disease burden, its catastrophic socio-economic impact and severe resource crunch calls for accelerated and urgent actions.

In its efforts, India launched the ambitious 100-Day TB Elimination Campaign on December 7, 2024, a bold step towards eliminating TB by 2025, five years ahead of the United Nations Sustainable Development Goals (SDGs), deadline of 2030. The TB Elimination Campaign aims to accelerate the fight against TB by improving case detection, reducing diagnostic delays, and enhancing treatment outcomes, particularly for vulnerable populations. Spanning 347 districts across 33 states and union territories, the campaign represents a critical component of India's strategy to eliminate TB and build a TB-free nation.

Indonesia, too, has renewed its commitment to accelerating the elimination of TB in the country by 2030, with several measures, including TB detection, treatment, and vaccination. As a first step it has set an ambitious goal of identifying one million TB cases by 2025. Indonesia is taking a leadership role in tackling TB with development of new vaccine candidates with the government aiming to begin TB vaccine production by late 2028.

The incidence and mortality rates of TB in China have dropped 30 per cent from the figures in 2012, according to a 2024-30 national plan for TB prevention and treatment. Despite the progress, the situation remains challenging, with approximately 10 per cent of rural and urban districts across China still considered high-prevalence areas. China aims to keep the incidence rate of TB below 50 new cases out of a population of 100,000 in 2025, with the rate falling below 43 out of 100,000 in 2030. To realise this goal, the country plans to adopt comprehensive measures in screening, treatment, prevention and awareness raising.

Reaching the unreached, specifically those who are vulnerable and marginalised is key to end TB. It would take a concerted and ceaseless effort by all nations if the TB scourge is to be brought under control by 2030. BS

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