



The e-newsletter for the Indian Biotech industry

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Biotech Industry to shine bright @ BIO San Diego from June 3



Our industry's leading lights are all set to make their presence felt on a global scale in a few weeks at the India Pavilion set up by ABLE @ Bio San Diego from June 3 to 6, 2024. ABLE team is leaving no stone unturned to ensure an easy passage to 30 key players from the country's biotech ecosystem, including governments, vaccine and therapeutics manufacturers, bio incubators, research centers, startups. They will show case the best, India's biotech has to offer to the world at the world's largest biotech event next week.

The ongoing busy election season has not come in the way of hectic activities in the Biotech industry. While policy initiatives are on hold, regulatory and other related issues have been attended to by government agencies across the country in recent weeks. One of the most important meetings was chaired by the Drug Controller General of India, Dr Rajeev Singh Raghuvanshi on April 26 when he had a 2-hour interaction with 130+ industry representatives on the new guidance documents prepared for streamlining the functioning of Subject Expert Committees (SECs) that appraise industry applications for medical product approvals. ABLE has submitted a detailed set of recommendations to further streamline the working of SECs. The DCGI has promised to look into all suggestions from the industry. This was a very fruitful meeting and the DCGI's patient listening to every suggestion was highly professional and praiseworthy. The industry looks forward to more such interactions on regulatory issues.

Technological change is a continuous activity in modern economy and our industry too has been adept at leveraging new technologies in every aspect, whether its research, manufacturing, processing, supply chain and so on. ["We need to be ready for biotech's ChatGPT movement," argues Google former CEO, Dr Eric Schmidt, in a column reproduced here.](#) He takes a futuristic look at the world from a biotech angle, where almost everything we use, whether cell and gene therapies to cure a range of diseases, food and meat we eat, fuels that run our vehicles, bioplastics that will wrap everything around and even concrete to build our homes will be of biotech origin.

Other few highlights of this edition of the newsletter are: [Dr Vijay Chandru, former President of ABLE, talking about his interaction with the scholars at Harvard University's Mittal Institute](#) on the Climate verse project on health-related surveillance and epidemiology; [Dr Deepanwita Chattopadhyay, ABLE Vice President's detailed interview to Indian Express](#) where she provides some great ideas to make India a Biomanufacturing Hub in the world. We also have extracts from the [special Spotify podcast, Grow Everything Biotech, in which ABLE's President of Council of Presidents, Dr P M Murali](#) details the ground-breaking technologies from biotech combined with community driven initiatives are pushing the world towards a sustainable development path.

The newsletter captures the highlights of our recent webinars on funding opportunities at BIRAC, the potential for biotech companies from India in Canada's New Brunswick and other major activities in which ABLE team was involved in the last few weeks.

Happy reading.

India at BIO 2024 International Convention at San Diego, USA from 3-6 June

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We are delighted to extend our invitation to you for the prestigious BIO International Convention, the world's largest event in the biotechnology industry, representing the full ecosystem of biotech with over 20,000 industry leaders from across the globe.

ABLE is proud to showcase leading biotech companies and government bodies at this event. We eagerly anticipate the chance to welcome and introduce you to the exhibitors at the India Pavilion.

Visit our Booth #4807

Meet the India Pavilion exhibitors



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ABLE Webinar on "New Brunswick - Canada's Living Lab for Digital Health & Life Sciences"

Opportunities
New Brunswick



Welcome to New Brunswick

Canada's living lab for
Digital Health & Life Sciences



The webinar "New Brunswick – Canada's Living Lab for Digital Health & Life Sciences" was held on Monday, April 29 in partnership with Opportunities NB. Opportunities New Brunswick (ONB) is the lead economic development agency mandated with fostering economic and business growth, innovation and job creation in the province of New Brunswick, Canada. Established to attract FDI into the province, support business in NB succeed globally by exporting and advancing innovation and technology in the province, ONB collaborates with government, industry and community partners to create a favourable environment for investment and economic development.

The webinar commenced with the opening remarks of Mr. G S Krishnan, Hon. President of ABL. The speakers for the webinar were Ms Tandi Dempsey, Sector Specialist - Life Sciences, Opportunities NB and Mr Sebastien Soucy, Senior Marketing Manager, Research NB. Research NB shapes and implements New Brunswick's research priorities, ensuring alignment with provincial objectives and fostering a culture of innovation. Research NB fund research projects across health, energy, forestry, agriculture and ocean sectors. The webinar was moderated by Mr. Sushil Rana, Country Head – Trade & Investment, Opportunities NB, High Commission of Canada.

The webinar shed light on the province's significant allocation of almost one third of its budget to healthcare spending this year, presenting promising opportunities for companies. Furthermore, it highlighted the emergence of pan-Canadian partnerships such as the CAN Health Network. Additionally, attendees learned about the ongoing development of the new Health and Technology District in Saint John, which aims to attract innovators, entrepreneurs, academia, researchers, as well as both large and small life science and technology companies. The webinar recording is available [Here](#)

For more information contact: Sushil Rana, Country Head (India), Sushil.Rana@gnb.ca

ABLE Webinar on "Funding opportunities at BIRAC : i4 & PACE schemes"

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- ABLE member Thermo Fisher Scientific Partners with Atal Incubation Centre to Boost Innovation
- ABLE member Indian Immunologicals Unveils Indigenous Hepatitis A Vaccine: 'Havisure' Marks Milestone in Public Health
- ABLE member Syngene International Reports FY24 Results: Revenue Up 9%, PAT Rises 12%
- ABLE member HiMedia Revolutionizes Nucleic Acid Extraction Across Industries with Automated Systems
- ABLE member Kemwell BioPharma Adopts Veeva Vault QMS for Enhanced Operations



The webinar "Funding opportunities at BIRAC: i4 & PACE schemes" was held on Wednesday, April 24. Mr. G S Krishnan, Hon. President of ABLE gave the opening remarks for the webinar followed by Dr. Sanjay Saxena, General Manager & Head of Investment of BIRAC.

Dr. Sanjay Saxena elaborated about BIRAC's i4 (Intensifying Impacts of Industrial Innovation) and PACE (Promoting Academic Research Conversion to Enterprise) Schemes. i4 (Intensifying the Impact of Industrial Innovation) programme supports biotechnological product/technology development by strengthening R&D capabilities of start-ups/companies/LLPs. Whereas PACE (Promoting Academic Research Conversion to Enterprise) programme encourages/supports academia to develop technology/product (up to PoC stage) of societal/national importance and its subsequent validation by an industrial partner.

He elaborated on the scheme structures and how they facilitate the journey towards securing funding for innovative ventures. Attendees gained valuable insights into leveraging these schemes to drive their innovative projects forward.

The webinar recording is available [Here](#).

For more information contact: investment.birac@gov.in

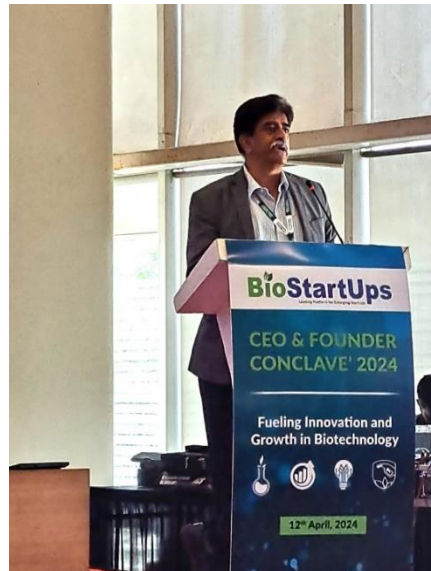
BioStartUps CEO and Founder Conclave'24 in Mumbai on April 12

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- IIT Bombay Wins the Prestigious Praj IISER Mimamsa
- India Biosecurity Fellowship
- Goodbye Covishield
- ABLE welcomes it's new members

BioSpectrum organized the first edition of the BioStartUps CEO and Founder Conclave'24 on 12th April at CIDCO Convention Hall, Mumbai. The Conclave was an exclusive, one day event that brought together the leaders, innovators, and stakeholders of the biotechnology startup ecosystem. This conclave aimed to provide a platform for networking, knowledge sharing, and collaboration within the thriving biotech startup community. The theme of the event was “Fueling Innovation & Growth in Biotechnology”.

Mr. G S Krishnan, Hon. President of ABLE chaired the panel discussion on 'Navigating the BioStartups Landscape' and Mr. Narayanan Suresh, COO, ABLE delivered a special talk on biotech startup ecosystem. Ms Deepanwita Chattopadhyay, Hon. Vice President, ABLE and Chairperson IKP Knowledge Park also chaired the session on “Innovations in Biotechnology”.



ABLE meeting with DP World



Mr. Yusuf Tambawala, Vice President Growth & Business Support of DP World visited ABL office to discuss about Bharat Bazaar, a trader's market initiative that enables Indian origin merchants to simultaneously access Jebel Ali Free Zone (Jafza) benefits and ecosystem along with reduce the cost of supply chain logistics with world-class multi-model

infrastructure and logistics solutions. He was accompanied by Mr. Amitesh Mishra, Manager - Business Development, DP World and Mr. P. Haridas, Independent Consultant.

ABLE signs MoU with Emerging Biopharmaceutical Manufacturers Network (EBPMN)



In an effort to promote cross-border innovation, investment, and technological exchange between EBPMN and India, EBPMN and ABL enter into this Memorandum of Understanding on 8th May 2024. The aim of this collaboration is to promote technology and technology-based investment, facilitate business expansion in India and low and middle-income countries; enhancing the global access of biopharmaceuticals by facilitating local manufacturing capacity in India and low and middle-income countries, and supporting collaborative research and development in areas of common interest between ABL and EBPMN. The MoU was signed by Mr. Narayanan Suresh, Chief Operating Officer of ABL and Mr. Syed S Ahmed, Vice President & Board Member of EBPMN and CEO & Director of TechInvention Lifecare Pvt. Ltd. The Emerging Biopharmaceutical Manufacturers Network (EBPMN), formally established as an international non-profit association in the Netherlands, the EBPMN Secretariat is now hosted in Butantã in São Paulo, Brazil with its registered headquarters in Mumbai, India and aims to expand biopharmaceutical access in low- and middle-income countries (LMICs) by fostering local manufacturing capacity and promoting sustainable practices, paving the way for a healthier and more equitable world. Visit the website www.ebpmn.tech

BBC 8th Foundation Day Celebrated with Startup Summit on April 18



The Startup Investor Summit with Ideathon was held from 18th to 20th April 2024 at Bangalore Bioinnovation Centre (BBC), Bengaluru. It was a pivotal event aimed at bringing together innovative startups, investors, mentors, stakeholders, academic institutions and students from the entrepreneurial ecosystem. This event served as a platform for startups to showcase their ground breaking ideas, connect with potential investors, and foster collaborations crucial for growth and success.

Bangalore Bioinnovation Centre Founders day and investor summit 2024 was inaugurated by Padma Bhushan **Prof.G.Padmanaban**, Honorary professor in the Department of Biochemistry at Indian Institute of Science (IISc) and Chancellor of Central University of Tamil Nadu. **Dr.Jitendra Kumar**, Managing director of Biotechnology Industry Research Assistance Council (BIRAC), **Dr. Taslimarif Saiyed** - Managing director/CEO of Centre for Cellular and Molecular Platforms (C-CAMP), **Mr Narayanan Suresh**, COO of ABLE - Association of Biotechnology Led Enterprises, **Dr H S Subramanya i**, Director of Institute of Bioinformatics and Applied Biotechnology (IBAB), **Dr Jayarama S Kadandale** of Centre for Human Genetics,

Dr Narayanan Madaboosi Srinivasan of Indian Institute of Technology-Madras, **Dr Mayilvahanan Bose** of Cancer Institute Adyar, **Dr. Dinesh Palanivelu**, Head India R&D of Thermo Fisher Scientific along with investors including and many more participated on 18th April 2024. They all spoke at the inaugural session.



Dr Jitendra Kumar traced the events leading to the formation of BBC and the various interesting anecdotes associated with the institution. Mr Suresh, highlighted some of the highly innovative products such NexCAR19 gene therapy developed by IIT-Bombay startup, ImmunoAct and few other such success stories.



A total of 37 investors (Angels and Venture capitals) and 3 family offices participated. 369 startups had registered for the BBC investor summit, Where 129 startups were selected and they pitched their ideas to the investors. Seven Venture capital firms in association with Bangalore Bioinnovation Centre (BBC) launched cohorts in the BBC to complete the investment cycle for the selected startups.



Along with interactive guest lectures, pitch sessions, investor networking, product showcases, Product Demo, ideathon, hackathon and many more events happened on 19th April 2024. Around 600+ participants visited and participated in the event.

ABLE as Principal Association Partner in the 4th Edition of the India Biopharma Leaders Conclave

13-14 June, Hyderabad



ABLE is delighted to partner as a Principal Association Partner for the 4th edition of The India Biopharma Leaders Conclave which is going to be held from 13-14 June in Le Meridien Hotel, Hyderabad.

The 4th Edition of the India Biopharma Leaders Conclave has the theme "New Horizons in Biopharma, Biosimilars, & Biologics." This theme likely indicates a focus on exploring new frontiers and opportunities in the biopharmaceutical industry, particularly in the areas of biosimilars and biologics. The conclave may feature discussions and presentations on advancements in biopharmaceutical R&D regulatory updates, market trends, and the latest innovations in the development and manufacturing of biosimilar and biologic products. It could also address challenges and opportunities in these sectors, such as improving access to affordable biopharmaceuticals and ensuring quality and safety standards.

Join us with renowned speakers and eminent leaders from around the world for the conference as we exaggerate the present to imagine a future where biopharma isn't just a field of study but a journey of discovery that holds the promise of transforming millions of lives.

Interested to contact Dr. Balasubramanya gm@ableindia.org.in for details regarding registration discounts.

BIOTECH NEWS

Listen to Dr. P M Murali's Revolution in Living Medicine at Spotify



Dr. P M Murali, President, Council of Presidents of ABLE; the Founder & Chairman of Jananom Pvt. Ltd.; Founder of Elive Biotherapeutics USA, and Advisor to Natural Nutrition was interviewed in Spotify's podcast channel Grow Everything Biotech.

Dr. Murali explains the urgent and complex challenges of sustainable development. He also talks about the intricate balance required to meet the needs of the present without compromising the future. Exploring innovative solutions, Murali shines a light on groundbreaking technologies and community-driven initiatives that are paving the way for a more sustainable world. This episode not highlights the critical issues but also inspires action, making it a must-listen for anyone interested in shaping a sustainable future.

Grow Everything reveals the world of biology as technology. Hosts Erum Khan and Karl Schmieder interview leaders and influencers biologizing industries with tools like synthetic biology, precision fermentation, bioprospecting, and more.

Listen to the episode in [Spotify](#) and [YouTube](#).

It's time to become bio-manufacturing hub of the world: Deepanwita Chattopadhyay, CEO, IKP Knowledge Park



With a rich experience in mentoring startups, Deepanwita works with Indian and global partners to nurture and fund innovation projects and early startups in the life sciences space.

Ms Deepanwita Chattopadhyay is the Chairman and CEO, IKP Knowledge Park, Hyderabad, the first life science research park in India. A pioneer in the hardware product incubator and makerspace in India, Deepanwita was also the key driver behind IKP EDEN- Engineering, Design and Entrepreneurship Network, a makerspace in Bengaluru. **She is also the Vice President of India's leading biotech industry association, ABLE (Association of Biotechnology Led Enterprises).**

With a rich experience in mentoring startups, Deepanwita works with Indian and global partners to nurture and fund innovation projects and early startups in the life sciences space.

She began her career as an engineering faculty at BITS, Pilani and as freelance science writer for children. Later, she joined the telecom advisory practice of ICICI Bank in 1994 and advised the government and the private sector on telecom regulation and policy, convergence issues and market entry strategies.

Deepanwita is a member of the Global Advisory Council of the International Association of Science Parks (IASP) with its global headquarters in Malaga, Spain. She is on the Research Council of the Centre for Cellular & Molecular Biology (CSIR CCMB), Executive Council of AGNii (Accelerating Growth of New India's Innovations), and on the governing council of several incubators in India.

Deepanwita spoke to *indianexpress.com* on the challenges faced by life sciences startups, the need for patient capital in deeptech research, and IKP's mentoring of life sciences startups among other things. Edited excerpts:

Venkatesh Kannaiah: Can you give us an overview of areas of emerging innovation globally in the life sciences domain, and its social impact.

Deepanwita Chattopadhyay: Innovations in healthcare, agriculture, food and nutrition, and environment are areas of interest globally. On one hand there is the building of large scale infrastructure of super specialty hospitals by governments and the private sector, but more interesting is the emphasis on remote healthcare, better access to health through the use of multiple digital tools, and better diagnostics delivered both in-person and in a remote manner.

There are also growing innovations in the decision support systems for doctors, use of artificial intelligence and machine learning, and use of large databases to glean patterns and suggest remedies. For example, there is a company **Niramai**, which innovates on breast cancer screening and uses data and AI to screen faster. Another example is one of our incubated startups, **Predible Health**, that uses AI for accurately analysing MRI and other radiology images to help the doctor in his diagnosis and treatment of organ-specific cancer, especially lung cancer.

With better understanding of genetics, genomics and the vast intrinsic differences among people, there is a shift from the "one size fits all" paradigm where the same medicine or treatment is used to treat all people, to an increased interest in innovations centred around personalized healthcare solutions. A growing focus is on treating cancer with personalized cell- and gene-based therapy. As of now these treatments are extremely expensive. Many startups in India are now innovating to bring down the cost of these medical interventions substantially.

There are also innovations in nutraceuticals and smart proteins, with a focus on plant-based proteins for vegetarians. In agriculture, we are witnessing innovations across the value chain from crop, pest and soil management to areas like hydroponics and better water management techniques.

There is now the concept of 'One Health' where we have begun to see the health of humans, animals and plants as an integrated whole. The impact of climate change and the movement of pathogens from birds to humans and from animals to humans are forcing us to rethink health. This would be a paradigm change and I believe most new innovations would be tested on how much it is taking the 'One Health' idea into consideration and the risk of unintended consequences.

Venkatesh Kannaiah: Tell us about startups incubated/mentored/funded by you which you think will have a large social impact.

Deepanwita Chattopadhyay: We have engaged with more than 1,400 startups so far, and many have become hugely successful in their social impact and in raising funds.

Laurus Labs is IKP's first incubated company which has transformed itself from an active pharmaceutical ingredients company focusing largely on oncology and HIV to an integrated research-based pharmaceutical and biotechnology company. Their work ranges from generic formulations, custom synthesis, biotechnology, veterinary APIs as well as investing in innovations in cell and gene therapy. They work with all the top generic pharma companies in the world, and have more than 200 patents in their areas of work. I consider it as one of the leading impactful companies at IKP and a successful model for many to emulate.

GPS Renewables is a waste-to-energy technology company that is pioneering the development of clean and low-cost technology for waste management solutions. It is also India's leading full-stack biofuels firm, offering technology and project development solutions for bioCNG, Ethanol and green hydrogen solutions. They have also commissioned Asia's largest Bio-CNG plant in Indore, and have also built an EV charging station in Mumbai based on biogas.

Logy.AI is a small and early-stage company which uses AI and ML in training their databases to screen for cataract patients, and enable this screening to be carried out through a smartphone. This would facilitate large scale screening in remote parts of the country.

Remedio is a company which has built solutions to treat diabetic retinopathy and other eye diseases like glaucoma. This is also a solution in the field of remote monitoring, but here a proprietary imaging system is used instead of a smartphone camera. It is decentralising comprehensive eye testing using AI and telemedicine, with simple ophthalmic devices. Even inexperienced volunteers can use these products with minimal training.

Dozee is another company that has an innovation wherein a sheet with sensors is placed below the mattress which captures the micro-vibrations that are emitted from the body through heartbeats, respiration cycle, and body movement. The data is sent to the secure cloud which converts it into meaningful bio-markers.

Venkatesh Kannaiah: Can you tell us about your challenge grants and interesting startups that have emerged from these initiatives?

Deepanwita Chattopadhyay: We are a pioneer in being the programme implementing partner in India of the global Grand Challenge Explorations of the Bill & Melinda Gates Foundation way back in 2011. We ran the Tuberculosis grand challenge in India, with Gates Foundation, USAID, BIRAC and FCDO-UK and identified many innovations.

India is among the countries with a very high incidence of tuberculosis. Among the many startups which went through our cohort was **Everwell Health** which worked in the realm of drug regimen compliance by patients by developing their digital product called 99DOTs. We globally have a standard called Directly Observed Therapy (DOT) where health workers need to manually monitor the patients taking in the medicines. Since this poses a huge challenge, many innovations were built around the theme of drug adherence, and 99DOTs was among the most innovative, widely adopted in India and globally.

We also worked on five grand challenges with the Government of Karnataka, one of the themes being industrial waste water where the startup **Greenenvironment** provided an elegant solution that was adopted by various housing complexes and industries. Right at the beginning of COVID-19, we set up a small fund called the IKP COVID Fund or I-CO Fund to quickly gather many startups to work on various solutions for pandemic control from masks and PPEs to diagnostics and non-invasive ventilators.

We have worked extensively with the Biotechnology Industry Research Assistance Council (BIRAC) of the Department of Biotechnology, Govt on grand challenges in various aspects of health, from infectious diseases to maternal and child health and digital health. We have mentored many startups. One of them is **Janitri Innovations**, which works to develop sustainable, affordable vitals monitoring devices and software to monitor the journey of pregnancy, and childbirth. It offers a wide range of antenatal and childbirth monitoring products.

Another interesting startup is **Parisodhana**, which has come up with a palm-sized product StayWarm which provides comfortable warmth without any need for power supply or batteries. These pouches fit conveniently in pockets, gloves, or shoes and provide 6-8 hours of warmth. They are also working on the area of particulate materials in the field of air activated warming platforms. This technology can provide solutions to various on the go heating and warming needs of users. Various products are being tested to perform at very high altitudes and cold climates. These are now being used by Indian soldiers in the Siachen area.

Venkatesh Kannaiah: How is the startup ecosystem in your domain in India, are startups getting funded, and what are the challenges and opportunities.

Deepanwita Chattopadhyay: You must understand that life sciences are a long gestation, IP driven area, with deep tech-based research products, and which requires patient capital, with no quick returns. It is also a field which requires validation of the products and the regulatory processes and practices to be adhered to. It takes a minimum of 5-10 years for the product to reach the market, and most of the early funding comes from grants and government investments.

However, the industry is maturing now and life sciences focused funds are emerging. Earlier, we were hardly innovating products in the biopharma sector, and were mostly in process innovation and generic drug manufacturing with off patent drugs. The pharma and biopharma sector is now moving up in the innovation spectrum, with work around green chemistry, biosimilars and biologics.

Venkatesh Kannaiah: What are biosimilars and why are they important to India?

Deepanwita Chattopadhyay: Biosimilars are a biological drug that is very much like another biological drug (called the innovator reference drug) that has already been approved by the regulator, for example by the U.S. Food and Drug Administration (FDA). Biosimilar drugs and reference drugs are made from living organisms but they may be made in different ways and of slightly different substances. Biosimilars will have a positive impact on drug pricing and would lead to affordable pricing of certain kinds of medicines, which are now very expensive, and which are used to treat cancer, kidney diseases, chronic arthritis among others. This is key as many of the expensive biologic drugs being used in developed countries might be losing their patents, and might lead to the production of similar drugs, or biosimilars.

The next big thing for India would be biomanufacturing. We are considered the pharmacy of the world supplying generic pharmaceutical medicines worldwide. India has now the

opportunity to become the bio-manufacturing hub of the world. It is not just about manufacturing biosimilars but the whole gamut of biologics.

Venkatesh Kannaiah: What would be your big bet for the sector which you think might have a huge impact if it works?

Deepanwita Chattopadhyay: It's a long haul, but I feel cell and gene therapy for cancer and in general immunotherapy is an area where India can bring the price down several orders to make treatments affordable in the long run. Several companies are working in this space, and I am proud to say that **Laurus Labs** is investing in this area that could be a game changer in the long run.

(Courtesy: The Indian Express)

“My focus is on building a master plan for addressing health care for rare and orphan diseases patients in India,” says Prof Vijay Chandru



Prof Vijay Chandru, one of the speakers in the “Genetics and Medicine” panel at LMSAI’s [Annual Cambridge Symposium: Science and Technology](#), is a Visiting Scientist in the Department of Global Health and Population at the Harvard T.H Chan School of Public Health. He is an academic entrepreneur, having founded several digital health companies including [Strand Life Sciences](#), a life science informatics and precision medicine solutions company based in Bangalore, India, after spending 23 years in academia. He was recognized as a “Technology Pioneer” by the World Economic Forum and was recently [elected a Fellow](#) of the American Association for the Advancement of Science (AAAS) in Washington DC. **He is**

also a former President of Association of Biotechnology Led Enterprises (ABLE).

He shared more about his life’s work in the Q&A below.

Mittal Institute: Vijay, thank you for speaking with us ahead of our Annual Cambridge Symposium! You began your career as an academic, having taught data and decision science for over two decades at Purdue University, Indiana, and the Indian Institute of Science. Can you tell our community what “data and decision science” means to you, and why you initially decided to enter academia?

Vijay Chandru: I trained in electrical engineering in India and at UCLA, and at MIT, I chose to focus on systems science and operations research which were the mathematical and computational methods for modeling and decision support in a variety of applied domains. This included logistics and manufacturing, energy management, and engineering design of semiconductors and communication networks. Electrical engineers, like physicists, are natural intellectual poachers and I enjoyed using the tools I had at my disposal to enter new domains and have some impact.

The choice of an academic career happened as I really enjoyed teaching, and I felt that staying in academia would allow me to hone my analytical skills. At Purdue University, as an assistant professor, I studied, taught, and carried out research in computational geometry and computational logic towards automated theorem proving, which was then considered the foundation for machine intelligence.

After my tenure at Purdue, I moved to India – first on a sabbatical – and found colleagues at the Indian Institute of Science and at the Centre for AI and Robotics in Bangalore with whom I worked on machine learning in the 1990s well before artificial intelligence and machine learning became fashionable. Around 1996, together with three colleagues, I convened the Perceptual Computing Lab (“percolat”). We built a reputation of audacious (extreme) engineering, which began by exploring translational problems that could be addressed by algorithmic problem-solving. A senior mentor at the Institute, Professor Roddam Narasimha, anointed us the keepers of the classical Indian tradition of computational positivism (drik + ganita = Siddhanta), which says that all knowledge follows from observation and calculation. It was a splendid time and resulted in the handheld “Simputer” that made a huge splash as a device of radical simplicity for universal access bridging the digital divide. These “percolat” years also prepared us for a launch into entrepreneurship.

Mittal Institute: You have founded numerous companies focused on biotech and digital health. Can you share more about one of them, Strand Life Sciences, India’s leading precision medicine company, which you co-founded in 2000 and led as executive chairman until 2018? What gave you the idea, and how does the company make a difference in the digital health space?

Vijay Chandru: Biology was entering its 4th paradigm as a data-driven science in the late ’90s. The human genome project was on and instrumentation and measurement in molecular biology was rapidly improving. Experimental data was exploding and biologists simply didn’t have the right data analytics to handle this. This was a great opportunity for folks like me to jump in and make a difference. I tried initially to work at the interdisciplinary interface within academia at the Indian Institute of Science where we had outstanding biologists. But it was hard to break out of silos, so a group of us decided to offer consulting services to biologists in the industry.

Eventually, this led to a company called Strand Genomics (later renamed Strand Life Sciences) where we built a robust data science platform for biologists leveraging high dimensional data visualization and classical machine learning. We called it AVADIS for Access, Visualize, Analyze to Discover – the basic workflow in computational biology. AVADIS included a very early LLM called Grammatica® that Strand created using natural language processing to read all of Pubmed in 2004. Deep learning was not a thing yet so we relied on old fashioned rule based grammar implementation and a combination of ontologies to represent the extracted knowledge.

We pivoted into building our own labs and becoming a genomics company in 2012 for the Indian market. Strand is fairly unique in that since around 2014, we have had a fully integrated capability of going from a sample to a clinical report using an internally built informatics stack – handling the nitty-gritty of aligning sequencing data, calling out variants, and interpreting the clinical findings. We were the first lab in South Asia to be accredited by CAP-ISO for next-generation sequencing diagnostics. Cancer patients could now have their tumor signal analyzed for pharmacogenomic treatment choices, children with rare genetic diseases were diagnosed, and Strand helped India enter the age of precision medicine. Accelerated by the need for genomic surveillance during the pandemic, India now has an enormous capacity in genomics that is world-class. It has been really satisfying to have played a role in this transformation.

Accelerated by the need for genomic surveillance during the pandemic, India now has enormous capacity in genomics that is world class. It has been really satisfying to have played a role in this transformation.

Mittal Institute: How has the field of genomics changed since 2000? What are some exciting advances?

Vijay Chandru: The human genome project, a moonshot costing around \$3 billion over 15 years of multi-institutional, international participation, led to the first reference human genome that was published in 2003. But sequencing the next genomes was still quite laborious and extremely expensive – in computer science terms, it was a gigantic stochastic, dynamic programming problem.

Realizing that sequencing could be achieved with massive parallelization of short reads resulted in next-generation sequencing (NGS) becoming available in 2004-2007. The timing was perfect with advances in computing hardware for parallelism also arriving in the firmament. These sequencers began to make a difference in clinical diagnostic applications by around 2010 since enough of the human genome had been annotated. By 2012, the use of NGS was widespread and our company Strand established the first clinical-grade laboratory in South Asia by 2013 in Bangalore.

The promise of a “Moore’s Law” equivalent for genomics was the reason to get on this bandwagon early. Thought leaders like Professor Charles Cantor predicted that a \$100 whole genome would be a tipping point. We are close to that tipping point today at about \$250-300. Nowadays, the synthesis of AI and biology – the so-called TechBio push is evident. “We need to be ready for biotech’s ChatGPT moment,” says the silicon-valley oracle, Eric Schmidt, in a recent article in *TIME* magazine. There may be a possibility of a US-India partnership in implementing Schmidt’s agenda on generative AI and biotechnology, which I look forward to.

Mittal Institute: What are some challenges the field still faces, either geographically in South Asia or in general?

Vijay Chandru: The challenges in leveraging innovative technologies like genomics in the context of Low- and Middle-income Countries, including South Asia, are numerous. With a lack of an endowed “payer” system, most of these cutting-edge technologies only get directed to the so-called creamy layer of society that can pay “out of pocket.” Innovation just doesn’t have that market pull that is needed. As my dear friend Kiran Mazumdar often says, we must use “affordability” as a key driver of innovation in India. Today, Strand offers a whole exome plus sequencing at high depth along with genetic counseling at \$145 a test as promised by the Chairperson of Reliance, our major shareholder. It is already the world’s most affordable solution by far, but we need to get it down by a factor of three to ten times lower before the Cantor tipping point (\$100 for a whole genome sequencing) takes effect and the major misalignment of health systems can be corrected.

This misalignment that our health systems is characterized by the neglect of preventive care and early detection of sickness that would result in more affordable acute care. The biggest challenge in South Asia will be to reorient the focus on primary health care coverage while continuing to build capacity for secondary and tertiary care. This re-alignment or re-imagination can be led by technology innovation, following the example of how India stack has enabled financial inclusion. The CoWIN portal created as a digital public infrastructure for vaccination tracking and smart logistics during the latter part of the pandemic holds promise for a rollout of digital health at the population scale.

Mittal Institute: What are some things you hope the audience takes away from your Genetics and Medicine panel at our upcoming symposium?

Vijay Chandru: With co-panelists Prof. David Reich, one of the world’s leading experts on population genetics, and Prof. Priya Moorjani, a young outstanding bioinformatics scholar, the audience will get an extraordinary introduction to the richness of the genetics of India. Currently, because of the prevailing historical practices of endogamy and consanguinity, India manifests a lot of genetic-related disorders and health challenges. I will focus on these to complement David and Priya’s findings. I will also briefly mention the public health policy developments for these rare and orphan diseases in India and will touch on the emergent capacity for genomics and genomic medicine that India is putting in place.

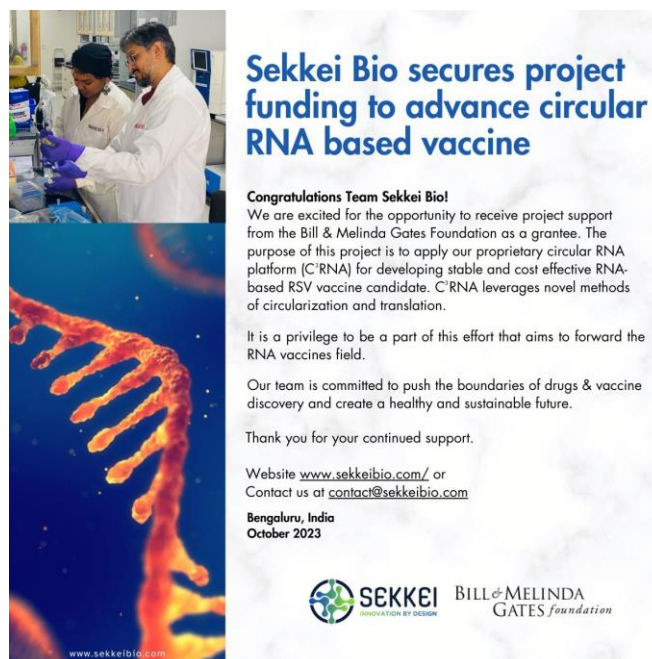
Mittal Institute: What research are you focusing on during your time as a Visiting Scientist here at Harvard? And what is next for you, post appointment?

Vijay Chandru: Through the guest lecture at HSPH, I have initiated a focus in my work towards building a master plan for addressing health care for rare and orphan diseases patients in India. At Mittal Institute, the work towards the Lancet Citizen’s Commission for reimagining India’s health systems, where I am co-chairing the technology workstream, has been a focus since last August. I have also interacted with scholars at the Mittal Institute working on the Climateverse project on health-related surveillance and epidemiology. Post-appointment, nothing much will change as I will continue to work on these topics in India through ARTPark and cross-border research collaborations.

☆ The views represented herein are those of the interview subjects and do not necessarily reflect the views of LMSAI, its staff, or its steering committee.

(Courtesy: The Lakshmi Mittal and Family, South Asia Institute, Harvard University)

ABLE member Sekkei Bio receive project support from the Bill & Melinda Gates Foundation



Sekkei Bio secures project funding to advance circular RNA based vaccine

Congratulations Team Sekkei Bio!
We are excited for the opportunity to receive project support from the Bill & Melinda Gates Foundation as a grantee. The purpose of this project is to apply our proprietary circular RNA platform (C³ RNA) for developing stable and cost effective RNA-based RSV vaccine candidate. C³ RNA leverages novel methods of circularization and translation.


It is a privilege to be a part of this effort that aims to forward the RNA vaccines field.


Our team is committed to push the boundaries of drugs & vaccine discovery and create a healthy and sustainable future.

Thank you for your continued support.

Website www.sekkeibio.com/ or
Contact us at contact@sekkeibio.com

Bengaluru, India
October 2023

 **SEKKEI**
innovations in vaccines

 **BILL & MELINDA GATES foundation**

A significant milestone for Sekkei Bio to receive project support from the Bill & Melinda Gates Foundation.

This grant will enable them to leverage their proprietary circular RNA (C³ RNA) platform in developing a stable and cost-effective RNA-based RSV vaccine candidate. The purpose of the grant is to generate probe molecules to interrogate complex reproductive biology processes that could help further validate potential nonhormonal contraceptive targets.

We Need to be Ready for Biotech's ChatGPT Moment, says former Google CEO

By Eric Schmidt



Imagine a world where everything from plastics to concrete is produced from biomass. Personalized cell and gene therapies prevent pandemics and treat previously incurable genetic diseases. Meat is lab-grown; enhanced nutrient grains are climate-resistant. This is what the future could look like in the years ahead.

The next big game-changing revolution is in biology. It will allow us to more effectively fight disease, feed the planet, generate energy, and capture carbon. Already we're on the cusp of these opportunities. Last year saw some important milestones: the U.S. [approved](#) the production and sale of lab-grown meat for the first time; Google DeepMind's AI [predicted](#) structures of over 2 million new materials, which can potentially be used for chips and batteries; [Cassava](#) became the first approved commercial gene-editing treatment using CRISPR. If I were a young person today, biology would truly be one of the most fascinating things to study.

Like the digital revolution, the biotech revolution stands to transform America's economy as we know it—and it's coming faster than we expect, turbocharged by AI. Recent advances in biotech are unlocking our ability to program biology just as we program computers. Just like OpenAI's ChatGPT trains on human language input to come up with new text, AI models trained on biological sequences could design novel proteins, predict cancer growth, and create other useful consumables. In the future, AI will be able to help us run through millions of theoretical and actual biological experiments, more accurately predicting outcomes without arduous trial-and-error—vastly accelerating the rate of new discoveries.

We're now on the verge of a "ChatGPT moment" in biology, with significant technological innovation and widespread adoption on the horizon. But how ready is America to do what it takes to bring it to fruition? I'm incredibly excited about this forthcoming breakthrough moment, but it's paramount to ensure that it will happen on our shores. That is why I'm serving on the National Security Commission on Emerging Biotechnology. As the Commission recently wrote in its recent interim report, "Continued U.S. leadership in biotechnology development is not guaranteed."

America has a history of being the first mover in an emerging industry before losing its leadership when outsourcing its production to other parts of the world. This pattern has repeated itself in high-tech sectors like passenger cars, consumer electronics, solar panels, and, most notably, semiconductors. To avoid the same mistake, it's crucial we secure a reliable supply chain domestically and internationally that covers everything from raw material extraction to data storage while we build the necessary talent pipeline. Relying on other countries for key components in biotechnology presents enormous economic and national security risks. For instance, leaving our genetic information in the hands of our adversaries could potentially aid them in developing a bioweapon used to target a specific genetic profile. President Biden's recent executive order aims to prevent sales of such sensitive personal data to China and other adversarial countries.

An investment in both human capital and physical infrastructure will be critical to continued U.S. leadership in biotech. Such investments need not come just from the government but should also provide incentives to stimulate more private funding, as did the CHIPS and Science Act. There's no overstating how central the bioeconomy will be to U.S. growth over the next fifty years. At present, the bioeconomy generates at least 5% of U.S. GDP; in comparison, semiconductors only constitute around 1% of U.S. GDP. By some measures, 60% of physical inputs to the global economy could be grown with biological processes—the promise of biology is vast for tackling some of humanity's biggest challenges, including climate change.

As AI boosts our ability to engineer biology, we will need guardrails in place. While it's easy to conjure doomsday scenarios of lone-wolf amateurs building a bioweapon from scratch right from home, studies by Rand Corporation and OpenAI have argued that current large language models like ChatGPT do not significantly increase the risk of the creation of a biological threat, as they don't provide new information beyond what is already on the internet. And it's also important to bear in mind that just because an AI model can design novel pathogens doesn't mean users would have the secure wet-lab infrastructure and resources to create them.

Nonetheless, with AI tools improving in accessibility and ease of use, the biorisk landscape is ever evolving. Soon, more complex foundation models could provide malicious actors with more data, scientific expertise, and experiment troubleshooting skills, helping to suggest candidate biological agents and aid them in ordering biological parts from a diverse set of suppliers to evade screening protocols.

Organizations like the Federation of American Scientists and the Nuclear Threat Initiative have recommended structured red-teaming—actively seeking vulnerabilities to preemptively secure our biosecurity infrastructure—for current DNA sequence screening methods and evaluating the biological capabilities of AI tools. More than 90 scientists just signed a call to ensure AI develops responsibly in the field of protein design. We'll need both standards for developing as well as requirements to implement risk assessments, as well as public-private sector collaboration in creating a robust economy of testing.

By now, most of us have likely eaten, been treated by, or worn a product created with biotech. Soon, the technology will disrupt every industry and fundamentally reshape our regular lives: new fertility treatments will transform parenthood; cellular reprogramming could start to reverse the aging process; biocomputing will power the computers of tomorrow. Standing on the brink of these innovations, we as a country have the unique chance to drive how biotech unfolds, realize its immense benefits, and shape the norms for responsible innovation—before other countries race ahead.

(The author is Commissioner, National Security Commission on Emerging Biotechnology; co-founder with his wife Wendy, Schmidt Sciences; former Chairman and CEO, Google)

(Courtesy: Time Magazine)

ABLE member Biocon to Supply Generic Ozempic for Diabetes in Brazil



Biocon Ltd, an ABLE Member and global biopharmaceutical company, announced the signing of an exclusive licensing and supply agreement with Biomm S.A., a specialty pharmaceutical company in Brazil, for the commercialization of its vertically integrated drug product, Semaglutide (gOzempic), which is used to improve glycemic control in adults with type-2 diabetes.

Under the terms of this agreement, Biocon will undertake the development, manufacturing and supply of the drug product, and Biomm will be responsible for obtaining regulatory approval and commercialization in the Brazilian market.

Biomm is Brazil's first and only biotechnology focused company, providing high quality healthcare to patients with chronic conditions and enhancing access to the latest technologies and treatments. The Company focuses on developing, manufacturing and commercializing complex biotech and biosimilar drug products at their state-of-the-art production facility in Nova Lima.

Siddharth Mittal, Chief Executive Officer and Managing Director, Biocon Ltd, said, *"Our partnership with Biomm marks another important step forward in our strategy to expand our global footprint beyond the U.S. and Europe for Peptides. This is also in line with our growth strategy of bringing to market a portfolio of complex, GLP-1 drug-device combination products. We are confident that our collaboration with Biomm will provide patients in Brazil, who are living with diabetes, much needed access to advanced, high quality treatment options to help them manage the disease better."*

Heraldo Marchezini, Chief Executive Officer, Biomm, commented: *"Brazil is the fifth country in the world with the highest incidence of diabetes, having 16.8 million adults in the age group of 20 to 79 years with the disease, and an estimated 21.5 million cases by 2030, according to the Diabetes Atlas of the International Diabetes Federation (IDF). We have, therefore, prioritized strategic partnerships to expand the population's access to advanced treatments for this disease and enhance the quality of life for people"*.

The total addressable market opportunity of Semaglutide in Brazil is approximately US \$580 million as per the IQVIA MAT Q4 2023

New World Order in Bioeconomy; India's Praj Secures Numero Uno Position



ABLE member and Pune-based Praj Industries has clinched the top spot in the Global Bioeconomy rankings, marking a significant milestone for India's burgeoning presence in sustainable technology. Praj's recognition as the No. 1 Hottest Company was announced at the Global Bioeconomy Flagship Industry Conference - ABLC 2024 in Washington DC. This accolade makes Praj the first-ever Indian and Asian company to achieve such a prestigious position in the advanced

bioeconomy sector.

The rankings, conducted by US-based magazine The Digest, are determined through votes from eminent jury members, international selectors, and a subscriber base of over 6.1 million worldwide. Praj's inclusion in the list of Hottest Companies underscores its exceptional contributions to the field, driving positive environmental impacts globally.

With a presence in over 100 countries across six continents, Praj has emerged as a key player in energy transition and climate action, offering innovative and sustainable solutions to its customers. Praj's journey from an aspirant to securing the top rank reflects four decades of dedication to the global bioeconomy. Praj's Chairman, Dr. Pramod Chaudhari, hailed this achievement as a testament to India's technological prowess and emphasized the company's commitment to delivering on its promise amidst greater expectations.

Praj's success underscores the importance of indigenous technology in alignment with the government's 'Make in India for the World' vision, signaling a new era of self-reliance and innovation in the bioeconomy sector.

ABLE member Thermo Fisher Scientific Partners with Atal Incubation Centre to Boost Innovation



In a significant move towards fostering innovation, the Atal Incubation Centre - Centre for Cellular and Molecular Biology (AIC-CCMB) in Hyderabad has inked an agreement with ABLE member Thermo Fisher Scientific. This collaboration aims to equip AIC-CCMB's cutting-edge facility, the Centre for

Innovation, with advanced technology, empowering scientists in start-ups to enhance their skills and entrepreneurial capabilities.

Dr. Madhusudhana Rao, CEO of AIC-CCMB, emphasized the initiative's role in supporting healthcare, pharmaceuticals, and biotechnology start-ups, stating, "Our goal is to build an

ecosystem conducive to innovation. By partnering with Thermo Fisher Scientific, we provide startups with the tools to drive research and accelerate product development."

Thermo Fisher has outfitted the Centre for Innovation with state-of-the-art platforms including the CellInsight™ CX7 LZR Pro High Content Screening Platform, KingFisher™ Flex automated nucleic purification system, EVOSTM M7000 imaging system, laboratory freezers, refrigerators, and thermal cyclers. These tools will bolster research, drug discovery, and assay development in molecular biology, protein biology, cell biology, and cell analysis workflows.

Srinath Venkatesh, Managing Director of Thermo Fisher Scientific India & South Asia, highlighted the collaboration's alignment with the Government of India's initiatives to nurture innovation and entrepreneurship, underscoring Thermo Fisher's commitment to supporting scalable and sustainable startups.

ABLE member Indian Immunologicals Unveils Indigenous Hepatitis A Vaccine: 'Havisure' Marks Milestone in Public Health



ABLE Member and Hyderabad-based Indian Immunologicals, a subsidiary of the National Dairy Development Board (NDDDB), has launched 'Havisure', the first domestically developed Hepatitis A vaccine in India. Priced at ₹2,150 per shot for the two-dose regimen, 'Havisure' represents a significant breakthrough in the nation's fight against Hepatitis A, a highly contagious viral infection transmitted through

contaminated food or water.

With eight years of meticulous research and extensive clinical trials involving nearly 500 volunteers, 'Havisure' has emerged as a symbol of Atma Nirbhar Bharat (self-reliant India). Managing Director K. Anand Kumar emphasized the vaccine's efficacy and safety, highlighting its comparability with existing alternatives.

Manufactured at Indian Immunologicals' facility in Hyderabad, 'Havisure' aims to address both domestic and international markets, with plans for WHO pre-qualification underway. Targeting routine immunization and at-risk individuals such as travelers and those with occupational exposure, the vaccine promises to significantly reduce the burden of Hepatitis A nationwide.

This launch underscores Indian Immunologicals' commitment to advancing public health, following the successful introduction of measles, rubella, and TD vaccines earlier in the year. As India strives for self-sufficiency in vaccine production, 'Havisure' stands as a testament to the nation's scientific innovation and healthcare excellence.

ABLE member Syngene International Reports FY24 Results: Revenue Up 9%, PAT Rises 12%



Syngene International has unveiled its full-year and fourth quarter results for the fiscal year 2024. The company reported a nine percent increase in revenue from operations for the full year, reaching Rs. 3,489 crore, accompanied by a 12 percent rise in profit after tax (PAT), before exceptional items, totaling Rs. 519 crore. However, for the fourth quarter, revenue from operations witnessed an eight percent decline year-on-year to Rs. 917 crore, while PAT increased

by six percent to Rs. 189 crore.

Jonathan Hunt, Managing Director and CEO of Syngene International, attributed the fourth quarter's performance to reduced demand for research and development services within the US biotech sector, stemming from a challenging funding environment. Despite this, the company delivered growth during the year, driven by investments in development and manufacturing divisions, particularly in biologics.

Syngene anticipates a recovery in demand for research and development services, driven by recent funding influxes into the US biotech sector. Looking ahead to fiscal year 2025, the company expects revenue growth in the range of high single digits to low double digits, with momentum building throughout the year.

Sibaji Biswas, CFO and Executive Director of Syngene International, highlighted proactive cost management strategies and strong net cash flow generated from operating activities, which funded capital expenditure and strategic acquisitions.

The company also announced new appointments to its board, including Nilanjan Roy as an independent Non-Executive Director and Sibaji Biswas' elevation to the position of director, designated as Chief Financial Officer and Executive Director.

Syngene International's commitment to innovation and strategic investments position it as a leading integrated provider of research, development, and manufacturing services.

ABLE member HiMedia Revolutionizes Nucleic Acid Extraction Across Industries with Automated Systems



HiMedia, a leader in laboratory solutions, is spearheading a revolution in nucleic acid extraction across various industries through its Molecular Biology & Virology Division (HiGenoMB). The division's automated DNA/RNA extraction systems, notably the Insta NX® Mag24, are designed to address the limitations of conventional methods, offering high-quality, efficient, and reliable extraction.

The Insta NX Series of Magnetic Automated Extraction, including the Mag16, Mag32, and Mag96 models, caters to different sample processing capacities. The Mag24 model is specifically tailored for handling higher sample volumes of up to 5 ml per sample, making it particularly beneficial for oncology testing.

Moreover, the Mag24's versatility extends to applications beyond oncology, including automated midiprep plasmid DNA extractions for research and vaccine industries, agricultural screening for infections, and food diagnostics. The system's adaptability across industries is facilitated by unique kits designed for handling bulk samples effectively.

By employing magnetic bead-based systems, HiGenoMB-HiMedia ensures specificity and sensitivity in DNA extraction, significantly reducing manual errors and saving time compared to conventional methods. Furthermore, the company's user-friendly, pre-filled cartridges streamline workflow, enhancing laboratory efficiency.

In light of the COVID-19 pandemic, HiGenoMB-HiMedia's systems have played a crucial role in rapid pathogen detection. The company's patented process enables the processing of up to 96 COVID samples in approximately 11 minutes, contributing significantly to COVID testing efforts in India and abroad.

Looking ahead, HiGenoMB-HiMedia envisions further advancements in automated nucleic acid extraction technology, aiming to improve the accuracy and efficiency of diagnostic processes. By developing affordable Point-of-Care Testing (POCT) platforms and diagnostic kits, the company seeks to democratize access to advanced diagnostic tests, particularly in developing countries.

With its commitment to innovation and tailored solutions, HiGenoMB-HiMedia is poised to continue driving progress in molecular diagnostics across clinical, environmental, and food safety fields, fostering a better understanding and management of diseases globally.

ABLE member Kemwell BioPharma Adopts Veeva Vault QMS for Enhanced Operations



In a strategic move, ABLE Member, Kemwell BioPharma, India's premier biologics contract development and manufacturing organization (CDMO), has swiftly integrated the Veeva Vault Quality Management System (QMS) across its developmental and manufacturing operations. This adoption signals Kemwell's commitment to elevating

quality standards and operational efficiency.

"Veeva Vault QMS will serve as the cornerstone of our expansion strategy across 40 countries worldwide," stated Deepak Gupta, Kemwell's Vice President of Quality. By leveraging Vault QMS, Kemwell aims to streamline regulatory compliance and align with client best practices.

Vault QMS offers pre-configured processes based on industry standards, facilitating efficiency and quality improvements. The cloud-based platform fosters seamless collaboration, enhancing transparency across stakeholders and regulatory bodies. This digital transformation reinforces Kemwell's position as a leader in biologics contract development and manufacturing.

Varadarajan Srinivasan, General Manager of Veeva Vault Quality India, expressed pride in the partnership, emphasizing Vault QMS's role in expediting clients' time-to-market for life-changing medicines.

IIT Bombay Wins the Prestigious Praj IISER Mimamsa 2024



IIT Bombay emerged victorious at the Praj-IISER Pune 'Mimamsa 2024,' a highly competitive national-level science competition held at the CV Raman Auditorium, IISER Pune. In a closely contested final, IIT Delhi secured the first runners-up position, with IISc Bengaluru and IIT Kanpur securing the third and fourth

spots, respectively. The winners were honored with trophies and certificates by Mr. Sachin Raole, CFO & Director at Praj Industries, alongside esteemed dignitaries from IISER Pune.

The three-day event, which commenced with a plenary address by Dr. Ravindra Utgikar, Vice President at Praj, witnessed participation from 1437 teams representing over 5093 students from 342 colleges nationwide. Notably, this year saw a significant increase in participation, including a rise in the number of all-girls teams.

Praj's collaboration with Mimamsa since 2020 has contributed to the competition's growth, fostering scientific exploration and innovation among students. Praj's Founder Chairman, Dr. Pramod Chaudhari, commended the initiative, highlighting its role in nurturing young talent and promoting practical problem-solving skills in science and technology.

The Praj IISER Mimamsa competition serves as a platform to celebrate the brilliance and ingenuity of young minds, inspiring the next generation of scientific leaders and fostering innovation in pursuit of excellence.

THE INDIA BIOSECURITY FELLOWSHIP:

Help shape the future of biorisk management

OVERVIEW

Gryphon Scientific and Sri Balaji Vidyapeeth (SBV; Deemed to be University) are excited to announce the India Biosecurity Fellowship. The first of its kind in India, this program will connect professionals in government, academia, and industry to advance their careers in **preventing and mitigating risks that can arise from the accidental or deliberate misuse of life-science research.**

The fellowship requires minimal additional time commitment to accommodate fellows' busy schedules. It will include:

- **Travel funding to attend a three-day in-person conference in Chennai in August 2024** to meet and learn from regional and international biosecurity experts and other fellows.
- **Virtual follow-up activities** to provide additional opportunities for professional development and to share updates on fellows' biosecurity efforts.

BACKGROUND

India's biomedical and biotechnology research enterprise is one of the largest in the world, and it is growing rapidly with investments from national and state governments, nonprofits, and the private sector. Alongside these efforts, companion initiatives are critical to ensure that the benefits of biotechnology are realized while minimizing the risks. **These include risks of laboratory accidents, malicious intent leading to inappropriate access, collection, and distribution of sensitive data, suspicious behavior, unintended or deliberate release of biological materials, or the publication of "dual-use" information that may enable others to cause harm.**

The India Biosecurity Fellowship is intended to train the next generation of Indian biosecurity leaders who can help to develop regulations, norms, and practices to combat traditional and emerging biotreats in India and worldwide.

REQUIREMENTS

To be eligible to apply, prospective fellows must:

- Have graduated from a PhD program in the last 10 years, OR another terminal degree program (e.g. PhD, DVM, MBBS) in the last 15 years, OR possess equivalent professional experience in national security, public health, medicine, biotechnology, laboratory sciences, global health, or a related field
- Be available to join a three-day in-person conference in Chennai in August 2024 with other fellows
- Be a full-time resident of India
- Be fluent in English – all fellowship materials and events will be in English

It is preferred but not required that candidates have prior experience working in laboratories with sensitive biological samples or data.

APPLY NOW

If you are interested in participating, please complete the application form at the link below by **May 10, 2024**:
<https://www.surveymonkey.com/r/IndiaBiosecurityFellowship>

Applications will require the following information:

- A current CV
- A personal statement (up to 500 words) describing your career goals and interest in biosecurity.
- An essay (up to 500 words) describing a technical or policy issue in biosecurity that interests you.
- Email address of a current professional or academic supervisor who is willing to provide a letter of recommendation.

The project team will review applications and aim to announce fellows by the end of June 2024.

Additional questions?
Contact the project team here:

indiabiosecurityfellowship@gryphonscientific.com

The India Biosecurity Fellowship is hosted by Gryphon Scientific, LLC and Sri Balaji Vidyapeeth's Mahatma Gandhi Medical Advanced Research Institute, with funding from the U.S. Department of State Office of Cooperative Threat Reduction's Biosecurity Engagement Program.



GRYPHON
SCIENTIFIC



Goodbye Covishield

By Narayanan Suresh



Bangalore: One of the world's most popular Covid-19 vaccine, Covishield, made by AstraZeneca and ABLE member, Serum Institute of India, has bid good bye to the world after three years of existence.

On May 8, AstraZeneca, which produced the vaccine in collaboration with University of Oxford in the UK, announced that due to commercial reasons, mainly lack of demand worldwide, the vaccine is being withdrawn. The

production of it has stopped globally.

In November 2020, when it was first introduced to tackle the raging Covid pandemic it was described as the "vaccine for the world" due to low cost, ease of storage and availability around the world due to large scale manufacturing.

AstraZeneca said it was withdrawing the vaccine due to the emergence of more effective vaccines and lack of demand for it as booster shots. The vaccine was initially developed to handle the Ebola virus spread in Africa and was later repurposed when found to be effective against virus causing Covid-19 in early 2020 when the pandemic shut down most of the world. In the short three years of existence, more than 3 billion doses of the vaccine have been made and supplied to over 175 countries. Serum Institute made 2 billion of these doses at its Pune facility. In India, it was marketed as Covishield whereas in Europe it was supplied under the brand name, Vaxzevria.

Experts estimate that the vaccine has saved over a million lives, prevented at least 5 million hospitalizations and prevented more than 50 million Covid infections among the 1.75 billion people who received mostly two doses each. And few million got booster shots too.

Serum Institute has stopped production of the vaccine in December 2021 itself as the country reached peak vaccination levels.

Recently there have been reports of court cases related to the occurrence of blood clotting and deaths in few hundred patients during the height vaccination. Several court cases for compensation from the manufacturers have been filed.

"The truth is it made an enormous difference, it was what lifted us out of the catastrophe that was unfolding at the time, combined with the other vaccine from Pfizer," said Prof Adam Finn, from the University of Bristol.

"We fully understand the ongoing concerns and it is crucial to emphasize our commitment to transparency and safety. From the outset, we have disclosed all rare to very rare side effects, including Thrombosis with Thrombocytopenia Syndrome, in the packaging insert in 2021," a spokesperson for Serum Institute said.

"Despite the challenges faced during the global pandemic, the safety of the vaccine remains paramount. Regardless of whether it's AstraZeneca's Vaxzevria or our own Covishield, both vaccines have been instrumental in saving millions of lives worldwide. We commend the collaborative efforts of governments and ministries in facilitating a unified global response to the pandemic," the spokesperson added.

ABLE welcomes it's new members



**ASSOCIATION OF
BIOTECHNOLOGY
LED ENTERPRISES
(ABLE)**

Comments and questions are welcome and should be addressed to:

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