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ASIA EDITION

Empowering Bioscience & Healthcare innovations in South East Asia by leveraging AI-driven scientific computing approaches

July 21, 2025 | Opinion | By Hithaishi C Bhaskar

Dr. Ilya Burkov, Global Head of Healthcare & Lifesciences Growth, Nebius Advances in genomics, drug discovery, and personalized medicine require processing enormous and complex biological datasets such as genomic sequences and clinical records, which often require substantial computing resources to process. It is imperative that key infrastructure challenges affecting data accessibility be overcome



Dr. Ilya Burkov, Global Head of Healthcare & Lifesciences Growth, Nebius

Singapore is rapidly becoming a global proving ground for precision medicine, powered by national initiatives steadily building a world-class biotech ecosystem. Initiatives such as the National Precision Medicine Programme and RIE2025 are not only unlocking new models of diagnosis and treatment, but also fostering the continued growth of a vibrant biotech ecosystem and global pharma giants and emerging startups. However, innovation brings complexity as well. A typical life science R&D generates vast volumes of data, but the opportunity to transform that data into next-generation diagnostics and therapies is limited by constrained access to AI infrastructure.

Aiming to support Singapore's vision for personalized, data-driven healthcare, Nebius, a full-stack infrastructure company, is redefining the life sciences industry by leveraging the latest technologies and strategies. With its AI Cloud, Nebius offers AI builders the tools needed for building, and optimizing digital models for healthcare and biotechnology research. Headquartered in Amsterdam, Nebius has R&D hubs in Europe, North America, and Israel. With its global expansion, Nebius has now expanded into Singapore and is investing in Southeast Asia as a key growth hub, aligning with Singapore's national

priorities like precision medicine and smart nation. Following its $700 million equity financing from NVIDIA and Accel in December 2024, Nebius raised $1 billion to fuel global expansion.

Nebius' AI training platform could unlock significant potential for researchers and biotech startups across Singapore and Southeast Asia. Nebius empowers researchers and startups by providing scalable, affordable AI infrastructure that eliminates the need for extensive in-house computing resources. This allows organizations to focus on developing personalized therapies and analyzing vast amounts of medical data without the burden of infrastructure overhead.

Dr. Ilya Burkov, Global Head of Healthcare & Lifesciences Growth, at Nebius shares deeper insights on empowering bioscience innovations with accelerated computational approaches in Singapore and beyond.

- **How does Nebius plan to support Singapore's biotech industry with a scalable, affordable infrastructure built over scientific computing?**

Nebius focuses on removing infrastructure barriers that slow down scientific research through its platform and potential partnerships. Bringing advanced models to life without the cost and complexity, Nebius is now launching in Singapore and will give biotech firms access to computing power (think GPU-powered H100s) and developer-friendly tools.

Nebius offers a cloud platform designed to give researchers and biotech companies easy access to high-performance computing without the need to build or maintain costly systems. With advanced GPUs like the H100, H200 and tools such as Nebius AI Studio, and TractoAI researchers can run and tailor AI models for complex biomedical tasks like single-cell analysis and drug discovery. The platform includes secure, ready-to-use environments to ensure safe handling of sensitive data. To ease cost barriers, Nebius aids start-ups and SME's with grants to alleviate infrastructure and operational challenges to enable them to focus solely on innovation.

In addition, we're committed to building meaningful partnerships that expand our impact. Whether it's collaborating with universities, research hospitals, or emerging biotech startups, we aim to connect innovators with the resources they need to accelerate discovery. By working together, we can remove barriers beyond technical issues, and accelerate the development of breakthrough innovations.

- **How does Nebius accelerates R&D and precision therapies without the burden of infrastructure overhead?**

Developing personalized therapies involves processing vast and complex biological datasets such as genomic sequences and clinical records, which often require substantial computing resources. This can be a challenge for researchers and biotech startups that lack access to critical infrastructure needed to process large datasets.

As a cloud-based computing platform, Nebius enables teams to run large-scale experiments without investing in their own data centers or hardware. GPUs and ready-to-use tools on Nebius platform simplify the training and running of AI models. For instance, using *Nebius AI Studio,* researchers can fine-tune open-source models for specific projects to predict how individual patients will respond to treatments..

Due to its cloud-based nature, the platform does not require installation, maintenance, or scaling. It gives teams the opportunity to start small and increase their resources as their needs increase, without becoming locked into long-term commitments or committing excessive capital up front. Biotech innovators are therefore empowered with flexibility to operate and focus on discovery rather than infrastructure.

- **How would Nebius enable researchers and biotech startups in Singapore and Southeast Asia accelerate research and innovation?**

Southeast Asia is poised to become a global hub for biomedical innovation, but realizing this potential depends on overcoming key infrastructure challenges. With growing regional health needs—from chronic disease to emerging infections—scientific advances in genomics, drug discovery, and personalized medicine are more urgent than ever.

Nebius supports researchers and biotech startups by providing the computing power they need to run large, data-intensive experiments without having to build the infrastructure themselves. An Nebius designed platform analyzes over 36 million

single cells in just days, a task that would normally take months. This helped accelerate their work in understanding how diseases behave at a cellular level, crucial for developing targeted treatments.

One of Nebius' biotech innovator platforms streamlines early-stage drug development by combining Artificial Intelligence (AI) with advanced chemistry. The advanced technology predicts how new medicines might act in the human body, even before lab testing begins. This lets researchers focus on the most promising drug candidates early on, speeding up development and improving the chances of success.

In Singapore, where the biotech industry is growing rapidly, startups stand to benefit greatly from this kind of scalable infrastructure. Several companies are already making advances in personalized therapies and next-generation diagnostics, however they are constrained by high computing costs. By making advanced tools more accessible, Nebius allows these innovators to concentrate on discovery instead of infrastructure.

As a whole, our efforts help transform complex data into real-world breakthroughs that lead to better healthcare outcomes, increased research equity, and long-term innovation across the region.

- **What are the most effective and cost-effective ways to address biotech bottlenecks, making it easier for researchers and startups to harness data for next-generation diagnostics and therapies?**

The most effective way to address biotech bottlenecks is to lower the barriers to advanced computing and data integration. Many breakthroughs in diagnostics and therapies depend on processing complex datasets, like genomic sequences or patient-level health records. But too often, the necessary tools are locked behind high costs, fragmented systems, or limited access to expertise.

First, scalable cloud infrastructure is key. By removing the need for upfront hardware investment, researchers can run large models on demand with high-performance computing capabilities to enhance performance of small teams and start-ups as well.

Second, simplifying model customization is crucial. Fine-tuning open-source models for specific use cases, like rare diseases or regional patient populations, can dramatically improve relevance and accuracy. Providing tools that support this, without requiring deep machine learning expertise, can accelerate time to insight and reduce costs.

Third, collaboration matters. Shared datasets, open standards, and cross-sector partnerships can help ensure that even under-resourced labs can contribute to and benefit from regional innovation.

More than infrastructure, it’s about smarter access, lower complexity, and a more inclusive innovation environment.

Furthermore, Public-private efforts to streamline data access and encourage ethical, interoperable AI use will be vital in scaling next-gen healthcare across Southeast Asia.

- **What are the recent initiatives by Nebius to accelerate the next generation of healthcare and life sciences innovation ?**

In order to propel promising healthcare ventures around the globe, Nebius has pledged over US$850,000 in GPU cloud and inference credits to leading biotech and healthtech companies. As part of our global AI Discovery Awards, Nebius supports pioneering companies in biotech, drug discovery, genomics, and healthcare diagnostics with AI infrastructure . A $100,000 GPU credit was awarded to four companies pioneering AI breakthroughs in cancer prediction, protein targeting, transcriptomic mapping, and precision diagnostics.

Based on 257 global contest submissions, 19 expert panelists from leading biotech, pharma, research, and venture capital organizations identified and validated potential AI solutions with promising paths to market impact. To name them by category,

Biotechnology: Ataraxis AI – A Cancer treatment prediction platform achieved 30% higher accuracy than standard genomic tests in clinical validation across 7,500 patients from 15 institutions. Using millions of images of pathology, the model can help oncologists decide whether aggressive therapies like chemotherapy are necessary.

Drug Discovery: Aikium –Targets “undruggable” proteins comprising half the human proteome using its Yotta-ML2 platform.

Genomics and Multiomics: Transcripta Bio –Built a high-resolution transcriptomic atlas containing over a billion gene responses to power AI models predicting biological responses from drug molecules. Partnered with Microsoft Research to identify new disease-gene associations.

HealthTech: MetaSight Diagnostics –Pioneers population-scale disease diagnostics through advanced blood testing, creating the world's largest blood molecular database from over 500,000 participants in the Israel Multi-OMICS Screening Trial. Developing screening products for colorectal cancer and metabolic diseases.

These companies represent meaningful progress in applying AI to healthcare's most challenging problems. From targeting previously undruggable proteins to predicting cancer treatment outcomes with unprecedented accuracy, these teams are building tools that will directly impact patient care and health outcomes.

Held for the first time this year, the Nebius AI Discovery Awards connect promising companies leveraging AI in healthcare and life sciences with the computational infrastructure and expertise needed to scale their innovations.

- **How can public-private partnerships be leveraged to support Singapore's vision of personalized, data-driven healthcare? How will Nebius contribute to this strategy in order to make a difference?**

Public-private partnerships are essential to realizing Singapore's vision for personalized, data-driven healthcare. While government-led initiatives like the National Precision Medicine Programme and RIE2025 have laid strong policy and funding foundations, scaling their impact requires collaboration with industry partners who can provide the infrastructure, technology, and expertise to support real-world implementation.

Our role at Nebius is not only to provide technology, but to enable this vision strategically. Beyond infrastructure, we are exploring collaborations that support data interoperability, responsible AI adoption, and skills development in scientific computing. For example, enabling researchers to securely access and analyze national genomic datasets requires more than just compute power; it calls for aligned standards, ethical governance, and capacity-building across the ecosystem.

By engaging at these intersections, Nebius hopes to contribute to a more resilient, innovation-ready health system. One where personalized care isn't limited to flagship institutions, but is embedded across public health, startups, and academic research, amplifying the societal and economic return on Singapore's national investments.

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