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The Race to Build Singapore's Biotech Unicorns

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MiRXES, known for its work in early cancer detection and backed by A*STAR and the National University of Singapore, became Southeast Asia's first biotech unicorn when it listed on the Hong Kong Exchange in 2025. It remains Singapore's only biotech unicorn to date. Despite the city-state's strong research base, established biotech ecosystem, and supportive policy environment, most Singapore biotech startups have not been able to scale to unicorn valuations. Why is this the case? Let's find out.



Singapore has one of the most advanced biotechnology industries. Singapore began building its biomedical sciences ecosystem over 20 years ago. Today, it is home to the regional headquarters of over 80 leading companies and also has 60 manufacturing plants and 30 R&D centres. Biomedical manufacturing is a key pillar of Singapore's diversified manufacturing industry, generating S$38.1 billion in output in 2023.

The city-state hosts regional headquarters for eight of the top 10 major pharmaceutical companies, including Abbott, Johnson & Johnson, and Pfizer. Singapore has also built deep research capabilities in Asian biology, around areas such as oncology, cardiovascular disease, ophthalmology, and skin and infectious diseases. This has given rise to a vibrant ecosystem in Singapore which saw a fourfold increase in locally incorporated biotech companies since 2015 according to the Economic Development Board (EDB).

However, translating this strong foundation into large, independent biotech companies has proven far more difficult. This is largely due to the nature of the industry itself, which is capital-intensive, highly regulated, and characterised by long development and validation cycles.

"Singapore's biotech ecosystem is still relatively young, but we're starting to see meaningful signs of maturity and impact. Drug development is a long game, unlike tech, where unicorn status can be achieved within a few years, it often takes more than a decade to bring a new therapy to patients. In this space, success is measured not just by valuation, but by scientific breakthroughs and real-world outcomes,," said **Dr Lisa Ooi, Assistant Chief Executive, Biomedical Research Council, A*STAR**.

She added, "We're already seeing promising results. MiRXES, with its innovation for early cancer detection and strong support from A*STAR and NUS, became Southeast Asia's first biotech unicorn on the Hong Kong Exchange in 2025. Nuevocor, an A*STAR spin-off, is advancing gene therapy for inherited cardiomyopathy and preparing for first-in-human trials.

These are strong proof points of Singapore's model, built on public-private partnerships, patient capital, and deep translational capabilities."

It is not for lack of effort though. Several Singapore-based biotech firms have come close to achieving scale, including Tessa Therapeutics and ASLAN Pharma. In 2023, Tessa Therapeutics, one of Singapore's most highly funded biotech startups, entered liquidation after being unable to secure additional funding to continue the development of its cancer cell therapies. In 2024, ASLAN Pharma announced that its Singapore-incorporated operating subsidiary, ASLAN Pharmaceuticals Pte Ltd, had filed for voluntary liquidation following a board review of its financial position and strategic options, resulting in the termination of employees across its Singapore and US operations.

Building a Biotech Ecosystem

Rather than focusing on producing individual unicorns, Singapore has shifted its emphasis toward building a broad, resilient biotech ecosystem. In 2025 life sciences companies in Singapore raised $82.2 million in equity funding across 14 rounds, compared with $72.1 million across 11 rounds in the same period in 2024, representing a 13.9 per cent year-on-year increase. Separately, the number of Singapore-based biotech startups has grown from fewer than 10 in 2012 to around 65 in 2023, and is expected to increase by more than 60 per cent between 2022 and 2032, according to the Economic Development Board.

"We are building a resilient, innovation-led ecosystem that empowers biotech companies to achieve global impact. Through initiatives like the A*STAR Entrepreneur Partnership Programme, we are also nurturing a new generation of founders who can turn scientific breakthroughs into high-growth ventures. Our focus is on developing a robust pipeline of globally investable biotech companies that will deliver healthcare innovations for Singapore and the world," said Dr Lisa.

A persistent challenge, however, remains late-stage financing. While seed and Series A funding are relatively accessible, Series B and Series C rounds require substantially larger capital commitments to fund clinical trials and regulatory pathways, which many local startups struggle to secure independently.

To address this gap, Singapore has moved to anchor more growth-stage capital locally. Novo Holdings, MPM BioImpact, SG Growth Capital, and the Economic Development Board have signed a memorandum of understanding to support fast-growing Asian biotech companies through the Singapore Biotech Bridge programme. The initiative aims to help companies access Singapore's innovation ecosystem, accelerate pre-clinical development, and support commercialisation, with a focus on patient outcomes.

International venture capital participation has also increased. Over the past two years, global life sciences investors including Polaris Partners, Flagship Pioneering, Accelerator Life Science Partners, and MPM BioImpact have established operations in Singapore, alongside Novo Holdings. Incubator and venture-building support has expanded with platforms such as JLABS by Johnson & Johnson and 65LAB backed by Evotec setting up local operations, complemented by new entrants such as Angelini Ventures.

Consulting firm L.E.K. Consulting observes that while ecosystems such as Singapore have made rapid progress, they continue to face gaps in late-stage capital, globally experienced talent, and scalable exit pathways. How effectively these constraints are addressed will ultimately determine whether Singapore's biotech ecosystem can consistently produce globally competitive companies over the next decade.

Innovative biotech startups of Singapore

Allay Therapeutics, founded in 2017, is transforming post-surgical pain management with its Singapore-developed, ultra-sustained, non-opioid solution, offering up to 30 days of relief compared to the standard 3 to 4 days. In June 2025, Allay successfully raised a $57.5 million Series D financing round, Following its successful Phase 2B clinical study, Allay has expanded its trials across Australia, Canada, and the US, and secured exclusive licensing partnerships with Maruishi Pharmaceutical in Japan, South Korea and Taiwan.

Callio Therapeutics, a spin out from Hummingbird Bio, raised $187 Series A financing (the largest Series A for biotech in Singapore) in March 2025 from a global syndicate of investors to develop cancer specific ADC therapies in Singapore and Seattle, US. The financing will support Callio's pipeline development to human clinical proof of concept.

Leyden Labs is developing non-vaccine antibody nasal sprays to protect against respiratory viral diseases including influenza and coronaviruses. In January 2025, ClavystBio and US investor Polaris Partners co-led Leyden Lab's latest $70 million financing round, which also included a global syndicate with GV, Casdin Capital, F-Prime Capital and an additional €20 million investment from the European Investment Bank in June 2025.

Nuevocor, an A*STAR spin-off founded in 2021, is pioneering novel therapies based on mechano-biology for genetic cardiomyopathies -- incurable conditions that affect even young adults and can lead to end-stage heart failure within 5 years. In May 2025, Nuevocor successfully raised $45M Series B financing. With FDA clearance for its first program, Nuevocor is set to begin US clinical trials in early 2026 and has expanded its global presence with a new office in Paris.

SCG Cell Therapy is developing an immunotherapy pipeline targeting chronic infections and pathogen-related solid tumours, combining multiple technology platforms and proprietary biological insights. The company raised $8.1 million in a Series C1 round in April 2023 and has secured additional funding in late 2025. Its focus is on advancing prevention and treatment options for cancers with unmet clinical need.

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