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## Could Singapore become the next global biotech hub?

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Despite planting seeds for decades, Singapore has yet to blossom into a global hub for biotechs. A new wave of international biopharmas setting up shop in the country and an influx of sophisticated, global biotech investors could change that.

Since the 1990s, Singapore has positioned itself as a world-class manufacturing hub, and has sought to build the research and manufacturing infrastructure to establish the biomedical sector as a pillar of growth for the country. That strategy received a jolt in 2000 with the launch of the country's biomedical strategy, which established the R&D and biomanufacturing hub Biopolis, the Bio\*One Capital fund to invest in domestic and overseas life sciences and biomanufacturing companies, and an initiative to attract scientists to Singapore as well as build talent locally.

In the ensuing years, many of the world's top pharmas and medtechs have established manufacturing bases and regional headquarters there, attracted in part by the country's reputation as a safe port of entry to Asia. Meanwhile, deep-pocketed domestic investors such as EDBI, GIC and Temasek

have continued to back life sciences companies at home and abroad.

Now, returnees seasoned overseas and a small group of innovative biotech start-ups are enhancing the local technology landscape as simmering geopolitical tensions burnish Singapore's reputation as a safe haven and, for some Chinese companies, a way to diversify their base relatively close to home.

Lyfe Capital's James Zhao pointed to the arrival of BioNTech SE (NASDAQ:BNTX) and WuXi Biologics Inc. (HKEX:2269), among other new entrants, as a sign that the local ecosystem is poised to take off. Last year, BioNTech announced plans to establish an mRNA manufacturing facility in Singapore, which will become the German biotech's regional HQ, and WuXi Biologics unveiled a \$1.4 billion initiative to build a CRDMO center.

Manufacturing, CDMOs and clinical trial resources are critical components of building a life sciences ecosystem, he said, citing WuXi's groundbreaking in Suzhou as the trigger for that city blossoming into a biotech center. He also cited innovative

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science, a pool of local capital, and stable policies as hallmarks of hotspots such as Basel, Boston and Shanghai.

“Singapore is in the right position to become the next biotech hub,” Zhao told BioCentury, adding that it could become a second engine for healthcare in Asia to go along with Suzhou-Shanghai.

Singapore’s manufacturing base, strong IP policies and research institutions such as the National University of Singapore and the Agency for Science, Technology and Research (A\*STAR) have set the backdrop for a Singapore biotech sector that has grown from a handful of companies in the early 2000s to more than 100 today, according to BioCentury’s BCIQ database.

Many of the therapeutics companies among this crop are still early-stage plays raising seed and series A rounds, a stage at which biotechs are in need of experienced hands at the tiller, something historically lacking in Singapore. A push by recently launched investment vehicle ClavystBio to partner with sophisticated VCs to build biotechs in Singapore, and the increased presence of global investors in local rounds, are signs that may be changing.

Another bright spot for the sector is that a few biotechs have recently raised mega-rounds backed by broad, global investor syndicates. And some have begun to attract MNCs such as Amgen Inc. (NASDAQ:AMGN), Boehringer Ingelheim GmbH and Takeda Pharmaceutical Co. Ltd. (Tokyo:4502; NYSE:TAK) as partners.

Singapore’s industry is still young, however.

“In terms of the ecosystem, we are still relatively nascent. There is a lot of interest from the younger generation and also from the government and the academic institutions to support the continued growth of the ecosystem,” said Polaris Partners’ Kim Png. “But we are really in the early innings right now. We are in the first generation of the really innovative start-ups.”

Sophisticated capital and talent with deep product development experience have been the most acute needs. And while this is true for biotechs around the globe, Singapore’s small market means that, unlike companies in most other locations, biotechs here are compelled to think globally almost from inception, whether in building management teams, raising money or running clinical trials.

## Follow the money

Venture financing for Singapore’s biotechs has come a long way in the past decade, from biotechs struggling to raise money locally to a sector increasingly on the radar of VCs from the U.S., China and Europe.

Carl Firth, CEO of Aslan Pharmaceuticals Ltd. (NASDAQ:ASLN), recalled the difficulty of raising venture

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funding for his company, which launched in 2010, a time when funding for drug development companies wasn’t a focus of government initiatives. Aslan had to seek its early venture funding outside of Singapore. The company, now one of Singapore’s longest tenured and most advanced in the clinic, initially went public in Taiwan; it’s now listed in the U.S.

ClavystBio, an affiliate of Singaporean global investment company Temasek, debuted in September to help change that. The company, which has committed \$220 million in investments, invests primarily in pre-seed, seed and series A rounds, contributing anywhere from a couple of million to \$20 million across therapeutics, digital health and medtech.

ClavystBio’s mandate, Senior Investment Adviser Khoo Shih told BioCentury, is to “nurture and build” globally competitive companies in Singapore. The company aims, she said, to “make Singapore one of the global life sciences translational hubs, so when entrepreneurs or founders and venture capital think of where the places are that we want to invest, Singapore would come to the picture, or companies from Singapore would come to mind.”

Its nine portfolio companies include Hummingbird Bioscience Pte. Ltd. and Paratus Sciences Corp., which are among the at least seven Singapore biotechs to raise venture rounds of at least \$100 million since 2020, according to BCIQ. Before 2020, only one Singaporean biotech, TauRx Pharmaceuticals Ltd., which also has U.K. operations, had raised a venture round topping \$100 million.

Hummingbird, which is led by CEO Piers Ingram, is developing precision therapeutics for cancer and autoimmune disease with mAbs against HER3 and VISTA in early clinical development for solid tumors. Paratus, which is based in Singapore and New York, launched in 2021 to apply insights derived from bat biology to human health and health security.

“Singapore right now has a good pool of private capital locally, but we are also working to bring in experienced venture capital who have been there, done that in venture building,” Khoo Shih said, noting that ClavystBio is looking for partners not just in the U.S. but also elsewhere in Asia, including China, and in Europe and Israel. “It’s a critical component for Singapore to continue to grow and expand that base. Not just

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capital, but capital that brings the experience and the network to help these young start-ups to grow, is also just as critical.”

ClavystBio has leveraged the network of its parent Temasek to identify VCs with which it can build companies in Singapore around local science. One such investor is Polaris Partners, which has been exploring opportunities in the country for the past few years, drawn by the innovation and science it is seeing, and opened an office in January with the hiring of Png, who was a VP with Temasek’s healthcare investment team. The partners have co-founded three companies to date. ClavystBio is also a strategic LP in Polaris as well as Accelerator Life Science Partners and Lightstone Ventures, a pioneer in early-stage biotech investing in Singapore.

CBC and Novo Holdings are among other global investors to increase their presence in Singapore recently. CBC moved its headquarters to the country from Shanghai, while the Danish investor’s opening of a Singapore office in 2021 marked the establishment of its Asia presence. Novo Holding’s move came in tandem with an investment it co-led with Vivo Ventures in the \$200 million series A round by Singapore’s Esco Lifesciences Group, one of the largest private rounds by

an Asia-based life sciences tools company. Esco affiliate EVX Ventures, both of which are led by XQ Lin, is a Singaporean VC with a presence in Shanghai and Boston.

One of the longtime anchors of life sciences investing in Singapore was also an investor in the Esco series A: EDBI, which participated in all but one of the sector’s \$100 million-plus venture rounds since 2020 for which the investors were disclosed.

The Singapore government strategic investment vehicle, which has been instrumental in fostering the development of the country’s life sciences sector, invests domestically and internationally in tech, with its investments in ex-Singaporean companies geared toward attracting those entities to establish a local presence and in turn bolster the local ecosystem.

In healthcare, EDBI invests in “high potential growth” and late-stage companies, ranging from biotechs and diagnostics plays to medtechs and biomedical companies, with its areas of interest including cell and gene therapy, genomics, precision medicines, digital therapeutics and AI or technology-driven medical devices.

## Singapore venture rounds \$100M+ since 2020

Company	Amount raised	Financing type	Date	Technology	Investors
Biofourmis	\$320M	Series D	8/10/22	Digital medicine	General Atlantic, Openspace, EDBI, CVS Health, Intel, Trevor Fetter
Esco	\$200M	Series A	5/26/21	Tools & services	Vivo, Novo Holdings, China Investment Corp., EDBI
RVAC	\$140M	Series A + B	4/26/22	mRNA platform	CBC, Pavilion, EDBI, GS Holdings
Tessa	\$126M	Series A	6/9/22	Cell therapies for cancer	Polaris, Temasek, EDBI, Heliconia, Heritas
Hummingbird	\$125M	Series C	5/17/21	Abs for cancer, autoimmune	Novo Holdings, Frazier, Octagon, EDBI, Amgen Ventures, DROIA, Morningside, Pureos, Polaris, Affinity Asset Advisors, Ally Bridge, Altrium, SK, Heritas Capital, Mirae
TauRx	\$119M	Warrant exercise	11/14/22	Tau in Alzheimer’s disease	Undisclosed existing investors
Biofourmis	\$100M	Series C	9/3/20	Digital medicine	SoftBank, Openspace, MassMutual, Sequoia, EDBI
Paratus	\$100M	Series A	2/24/23	Bat biology platform	Polaris, Arch, ClavystBio, EcoR1 Capital, Leaps by Bayer and Alexandria

Source: BCIQ

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Its investments over the years have included Lonza Group Ltd. (SIX:LONN), which established biologics manufacturing facilities in Singapore in 2006-07; a JV with Chiron Corp. that seeded S\*BIO Pte. Ltd., the country's first biotech research company; and a 2018 venture round by Moderna Inc. (NASDAQ:MRNA).

## Talent pool

More hands-on involvement from sophisticated global investors should help Singapore's young biotechs build out their teams, as seasoned company builders have been an acute need in the ecosystem. Likewise, Singapore has historically had a gap in experienced drug developers to match its growing skill set in discovery and translational research.

"One of the strengths of Singapore is the talent upstream in science and discovery," said Khoo Shih. "We'll continue efforts to grow and attract a larger pool of talents that really have the experience and capabilities in translation and product development."

Png agreed, noting the need to build "a generation of people who have actually done product development and scaling start-ups" to foster the ecosystem's growth.

"We now have a pool of fairly well-trained academic scientists. But to translate innovative IP into a product, or even getting approval from the regulatory authorities, there's many more steps to that," she said. "We don't have that many people in Singapore with that kind of end-to-end experience."

This leaves companies recruiting internationally to import the experience.

"It does maybe impact the speed of development a little bit, but over time as the ecosystem grows and as the total experience in the ecosystem grows, hopefully this will be overcome," she said.

EVX's solution is to build cross-border companies from the outset, with its start-ups based in Singapore with a presence in either Shanghai or Boston to access technology and talent in multiple locations. Its portfolio companies are not alone among Singaporean companies with dual global centers of gravity.

Running biotechs on teams that span the globe and meet on Zoom is something that for many biotechs has become second nature, but nonetheless, managing teams across time zones, countries and cultures is not without its headaches.

"Singapore has great raw talent but lacks experience," said Lin, citing the different disciplines need to bring a therapy into and through the clinic. "You need to bring in experience, and that comes with time zone problems."

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AUM Biosciences Pte. Ltd. is one example of a company that has looked beyond Singapore's borders due to the talent crunch.

"Manpower shortage remains a key constraint in Singapore's biotech industry. The challenge lies in finding the best talent with the right expertise despite the small talent pool," Chairman and CEO Vishal Doshi told BioCentury. "We have built teams across geographies by cross-pollinating talents from the U.S. to Singapore, and vice versa, thereby allowing us to tap into a wider talent pool."

Just as financing and talent forces Singapore's biotechs to look outward, so does clinical development.

"Any start-up that comes out of Singapore will have to think about expanding internationally fairly quickly," Png said, "especially once they start thinking about clinical trials."

The country doesn't have the population base for a company to run Phase III trials, but it is feasible to run early-stage trials in the country. Other countries in the region, such as Australia, South Korea and Taiwan, offer biotechs alternatives for trial sites, with Australia in particular creating competition for Singapore. Australia offers biotechs a tax or cash rebate of over 40% on clinical trial related R&D costs.

Increasing direct incentives for companies to develop therapies locally, along the lines of Australia, would benefit Singapore's young biotechs and bolster the local ecosystem, Firth told BioCentury. "Singapore has great investigators and can deliver quality studies; however, high costs and control by administrators is making the country less competitive for clinical development."

## Time will tell

Another ingredient missing from Singapore's biotech ecosystem that has helped hubs elsewhere blossom into global hotspots has been the presence of a local hero in the form of a bellwether company.

"The other thing Singapore lacks that you do see in other geographies is, you could call them, national champions," said Firth, pointing to the roles large pharmas have played in the

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U.K. and Switzerland. “China has made no bones about saying we are going to create national champions. We’re going to give them help to do that because we need to help to create and foster the ecosystem.”

In China, companies such as BeiGene Ltd. (NASDAQ:BGNE; HKEX:6160; Shanghai:688235) and WuXi AppTec Co. Ltd. (Shanghai:603259; HKEX:2359) have helped attract others to the local ecosystem.

For Singapore, which lacks Europe’s deep pharma roots or the scale of China, a national champion might come in the form of a big win, whether that’s a large out-licensing deal or a bellwether IPO that helps build momentum.

As Lyfe Capital’s Zhao reminded, it’s early days for Singapore’s biotech landscape, citing the extraordinary growth of China biotech sector in the past 20 years.

And while Singapore’s market may be small, the country has long prided itself for — and delivered on — being a gateway to markets around the world. Zhao pointed to the country’s access to markets in East Asia and proximity to the young population centers of Southeast Asia, whose healthcare needs will be much larger in a decade’s time.

“Just give Singapore time.”

*Data Content Analyst Gunjan Ohri contributed to this report.*

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