

Singapore's Moment Has Come: Its Role as a New Global Biotech Hub

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Executive Summary

“A nation is great not by its size alone. It is the will, the cohesion, the stamina, the discipline of its people and the quality of their leaders which ensure it an honourable place in history.”

— Lee Kuan Yew, in 1963 (speaking of Malaysia, before Singapore's independence two years later)

As Singapore's founding father and first Prime Minister recognized, a small nation-state with limited natural resources can succeed in the modern world only by harnessing its people's diligence and intellect.

Good timing also helps. In the realm of biotechnology, Singapore now appears poised – after more than two decades of preparation – to capitalize on a confluence of trends to establish itself as one of the industry's global biotech “hubs”.

To succeed as a biotech hub, however, Singapore must show that it possesses not only skills, such as research and manufacturing, but an appetite for taking risks – in science, and in the investment needed to translate that science into medicines and other therapies.

We now see evidence of this “venture” mindset in Singapore's biotechnology community; and it comes just as the biomedical industry is looking to diversify its footprint in Asia. Singapore's timing could not be better.

In the article below, we survey key features of Singapore's past, present, and anticipated future in biotechnology:

- **By the Numbers:** A brief chronicle of the growing number of Singapore-based biomedical companies;
- **Public Policy:** Singapore's key public policy initiatives that are the foundation for becoming a biotechnology hub; and

- **Capital-Raising:** An overview of the types of transactions the Singaporean biotechnology industry – both investors and companies – can pursue.

By-the-Numbers: An Overview of the Singaporean Biomedical Industry

In 2000, then Senior Minister Lee Kuan Yew wrote: “With each technological advance, Singapore advanced ... [I]n the next 50 years ... the revolution in microbiology, gene therapy, cloning, and organ reproduction will transform people’s lives. Singaporeans will have to be nimble in adopting and adapting these new discoveries to play a role in disseminating their benefits.”

Almost half-way through those “next 50 years,” Singapore is showing evidence of just that sort of nimbleness.

Singapore’s biomedical industry is on an upward trajectory akin to that of Cambridge, Massachusetts or South San Francisco, California, in the 1980s and 1990s. While Cambridge and South San Francisco have had a 40 year runway to build themselves into the bioscience hub they are today, Singapore has aimed to fast-track its development through its National Biomedical Science Strategy. Since 2000, the Singapore government has facilitated the industry’s early development through various public initiatives. The current transition to later-stage development will require increased investment, capital, and buy-in from a variety of sources. More recent international involvement in Singapore is indicative that this long-term strategy is beginning to pay off.

There has been growth and expansion across the biomedical sectors. In 2000, there were 25 pharmaceutical manufacturing locations in Singapore; by 2018, there were 52; and by 2019, 18 of those included biological drug manufacturing sites. The medtech sector has grown to 30 medtech companies with R&D bases, 50 regional headquarters and more than 60 large medtech companies by 2020.

There has been criticism that the country could neither foster nor attract innovation in the biomedical space, but that too is beginning to change. Medtech has seen growth from 119 start-up companies in 2020, to 140 companies in 2024; while the number of pharmaceutical and biotechnology start-up companies has grown sixty percent in that same time period, from 100 in 2020 to 160 in 2024. As further support of the growth of the industry as well as its financial backing and confidence, Singaporean biomedical start-ups are raising more capital from local and international investors, with eight companies raising over \$100 million in individual financing rounds since 2020.

If the leading biotech hubs of Cambridge and South San Francisco provide the roadmap, Singapore is in a prime position to accelerate growth because it has developed and fostered the full ecosystem. Importantly, proximity to publicly funded scientific research (both universities and public agencies) fosters not only the creation of scientific technologies but also well-trained scientists. Beyond the science alone, an entrepreneurial ecosystem supporting the emerging life sciences companies is imperative, where outstanding scientists and savvy business folks can come together and share ideas and experience.

Public Policy: Key Initiatives (Early-Stage Emergence)

Through Singapore's strategic development, it has issued two public initiatives that have been essential in bolstering the biomedical industry: the National Biomedical Science Strategy and the IP Hub Master Plan, which were succeeded by Singapore IP Strategy 2030.

The National Biomedical Science Strategy budgeted \$10.5 billion from 2000-2021 to build up the industry. Between 2021 and 2025, the Singapore government has increased spending on the biomedical industry to \$19 billion. This budget has been split between facilities, public institutions and investments. The creation of Tuas Biomedical Park, Biopolis and MedTech Hub have centralized scientific talent. The country has established various public institutions to facilitate the strategy, including the Agency for Science, Technology and Research (A*Star), a standout in scientific development, the National Medical Research Council, which provides public funding for scientific development, and the Economic Development Board (EDB), which facilitates investment and economic-growth. EDB Investments, the venture capital arm of the EDB, through its life sciences subsidiary, Bio*One Capital, invests directly into biomedical start-ups. The Singaporean government has also established varied tax and grant incentives to assist in attracting startup expansion in the biomedical field.

The other noteworthy prong of the Singaporean strategy has been growing the country as a hub for intellectual property. The 2023 U.S. Chamber of Commerce's International Intellectual Property Index ranked Singapore 11th out of 55 in the world in part due to the Intellectual Property Officer of Singapore's robust intellectual property regime. The IP Hub Master Plan and Singapore IP Strategy 2030 have focused on making Singapore a destination for IP transactions, protection and dispute resolution as well as more recently shifting focus to increasing the confidence that financial institutions have in IP assets. In addressing the later goal, the country aims to implement valuation practice standards and guidelines, to help unlock value in IP that can promote enterprise growth through licensing, technology transfer and collateralization.

a. Public Funding

The funding of new science has primarily been through the National Medical Research Council. Similar to other countries, academic institutions and organizations receive this funding to create new science and technologies that can then be spun-out or licensed externally. A*Star is one such public academic institution that has out-licensed technology to various local start-ups. A*Star in many instances helps fund projects which they have been involved in creating and continue to have touch points with the resulting biotech companies through rotations that help innovators further develop the technologies. In 2023, the Advanced Cell Therapy and Research Institute, Singapore (Actris) opened, and together with the National Health Innovation Centre (NHIC) Singapore announced a joint grant call for projects in cell therapy, whereby projects will receive funding as well as other support for cell therapy development. Other grant calls from NHIC have included funding and mentorship for diagnostic technologies to bridge the gap from early science to commercial success.

While elements of this publicly funded model might give veterans in the international biomedical community pause, the grant language from the National Medical Research Council reserves only non-commercial, non-exclusive rights in technology developed under its grant of

funds. Further assurances include a clause that gives the grant-recipient Institution the ability to request a waiver of the limited license to the Grantor if it would facilitate third-party commercialization. This should give potential partners and licensees confidence that their rights to use the intellectual property free of major hurdles related to government interest in government-funded technology.

Capital-Raising, Partnering and Exit

Within the entrepreneurial ecosystem, venture capital funding is a much sought-after path for developing new technologies and company growth, but it is not the only avenue. Especially in biomedical sciences there are other sources of funding that can reap other benefits as well as the much needed financial assistance. The following options can provide financial, talent and exit potential for startup biomedical companies with exciting technologies.

a. Traditional Venture Capital

Singapore has been working to foster its own venture capital market and has been successful in attracting international venture capital firms for many of the reasons discussed above relating to the strength of the scientific developments and intellectual property protections in place within the country. Recently, VC firms have invested in Singapore biomedical start-ups and some are even opening offices and regional headquarters in Singapore, including Cambridge-based Flagship Pioneering. Investments by marquee biomedical venture firms like these, and sometimes also from the venture capital arms of multi-national biomedical corporations, provide needed financial support and validation, in addition to networking support and overall business guidance through experienced VC partners joining the companies' boards.

b. Incubators and Accelerators

There has also been a new model that pairs financial support with the nurturing of talent and sharing of experiences through incubator and accelerator working spaces. Firms like collab Novena, Temasek Life Sciences Accelerator, and A*Star Central are pairing funding with lab co-working spaces and collaborative opportunities. Another variation of this concept has been Big Pharma involvement in incubators. Amgen has teamed up with NSG BioLabs, Singapore's largest incubator, since 2022 to help facilitate biotech development through its Golden Ticket program. In 2023, Johnson & Johnson partnered with EDB for its JLABS Singapore incubator. These programs are impactful because they impart to younger entrepreneurs the experience and knowledge of existing scientific and business leaders.

c. Partnerships

Partnerships with larger companies, including co-development, licensing, and sometimes joint ventures, represent an opportunity for biotech startups to obtain non-dilutive funding as well as market validation for their science and technology. These types of deals can provide the capital needed – through upfront and milestone-based payments – to further validate a “platform” drug discovery technology or an IND-ready or clinical-stage product candidate to the “proof-of-concept” stage while preserving the equity positions of founders and early-stage investors. These deals can also offer multi-billion dollar “biobucks” payments (*i.e.*, payments

contingent on approval and commercialization of products), which can be attractive to future equity investors. Singaporean biotech companies have largely not yet tapped into the potential of these headline-grabbing deals. As the large multi-national pharmaceutical and medtech companies increasingly view Singapore as an source of innovation, however, it is likely that there will be increasing opportunities for early-stage Singaporean biomedical companies to enter into these types of transformative partnering transactions.

d. IPOs

When the capital market “window is open,” even early stage biomedical companies can use an initial public offering to raise funds to further develop new technologies. Singapore Exchange recently changed its IPO rules for life science companies to clarify that they do not need to be revenue-generating. A recent example from elsewhere in Asia has been Aslan Pharma, which initially listed on the Taipei Exchange in 2017, before listing with Nasdaq in 2018 to help fund the next stages of their development.

e. M&A

A last well-trodden path is spinning new technologies out as acquisition targets, which in turn provides funding for other products in the pipeline. For example, KBP Biosciences was recently able to sell their hypertension product to Novo Nordisk for \$1.3 billion enabling it to refocus on its organ, anti-microbial and immunology programs.

Conclusion

Success in the biomedical field rarely comes easily or quickly. The development timelines and capital requirements make the industry one of unavoidable high-stakes decisions. In this environment, and against a backdrop of shifting macro-economic and global geopolitical trends, it is critical for emerging Singaporean biomedical companies and investors to maximize opportunities and make considered decisions. Obtaining sound counsel – from experienced board members, as well as from seasoned financial and legal advisors – is key.

Emerging biomedical companies in Singapore can look to the experience of their older counterparts elsewhere in Asia – especially biomedical companies that emerged over the last decade or so in China and South Korea. With four decades-long presence in Asia and offices across the APAC region, our global life sciences team has been closely involved in many of transformational financing and partnership deals in Asia. Sidley also has forged long-lasting relationships in Singapore since its country office first opened in 1982. We are looking forward to continuing assisting Singapore’s growing biomedical industry.

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