

Singapore Association of Pharmaceutical Industries  
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BT PHOTO: KUA CHEE SIONG

# How Singapore can lead biopharma innovation

The Republic needs to align its patent term extension regime with international standards, and so start attracting more clinical trials. **BY ANDREW JENNER AND CHRISTINA TEO**

**S**INGAPORE is known by the global innovation and intellectual property (IP) expert community as a leader in the protection of IP rights. The latest International Property Rights Index for 2019 again listed Singapore as having Asia's strongest protection of intellectual property (IP) rights; globally, it ranks fourth.

Multinationals and homegrown companies alike can rest assured that their inventions are safe from theft in Singapore. The city-state is also an advocate for more robust IP protections in Asean, where short term gains can sometimes be prioritised over a country's long term credibility and development.

This leadership position is hard earned, and a result of Singapore's commitment to fostering innovation and a knowledge-based economy. The country's policymakers, in their consistent efforts to keep Singapore's economy at a leading edge globally, are cognisant of the imperative to sustain efforts to leverage IP as a key driver of economic growth.

Among the key recommendations of the Committee on Future Economy released in 2017 is the increased focus on proactive encouragement of IP creation in Singapore, versus just protecting existing IP rights. In response, the Intellectual Property Office of Singapore (Ipos) updated its Intellectual Property Hub Master Plan to transform "ideas into assets" and launched a S\$1 billion innovation fund to attract companies from around the world, with potential to scale across Asia, to Singapore.

This is a good plan, and Singapore is in a strong position to drive thought leadership and transformative policies in the region.

## DRIVING BIOPHARMA INNOVATION

The biopharmaceutical industry, in particular, has been a beneficiary of this ecosystem. Singapore is home to 50 biopharmaceutical research and development centres and another 50 manufacturing plants. Indeed, biopharma is now the second largest contributor to the country's manufacturing sector, producing over S\$16 billion worth of exports.

Thirty international pharmaceutical companies have chosen Singapore as their regional hub. Eight of the world's 10 largest pharma companies have facilities here. In recognition of the biopharmaceutical sector's continued contribution to Singapore's economic growth, the Research Innovation and Enterprise (RIE) 2020 plan has allocated S\$4 billion to the health and biomedical sciences sector.

It was in recognition of Singapore's importance as a biopharmaceutical centre of excellence in the region and globally that Interpat, a global non-profit association comprised of phar-

maceutical executives responsible for IP issues, held its 2019 Annual General Assembly in Singapore. It was the first time the meeting was held in Asia.

These commercial activities all in turn contribute investment and high value employment and training opportunities to Singapore. The sector currently employs over 6,000 skilled workers, more than twice the number in the early 2000s.

In 2016, the R&D investment of pharmaceutical companies alone amounted to over S\$345 million, which does not include their investment in manufacturing and corporate functions. Singapore's pharmaceutical market may only represent 0.09 per cent of the global market, but the country's pharmaceutical investment comprises 0.43 per cent of global pharmaceutical investment. However, Singapore is still relatively young as a patent jurisdiction, and there is some work to be done to grow the number and quality of patent filings.

For pharmaceutical companies, patents are the primary way to offset the high R&D costs that can stretch over decades, and ensure sustainable investment into the medicines of tomorrow. In developed markets (and major biopharmaceutical manufacturing centres) such as the United States and the European Union, patent systems compensate drug developers for the phase following clinical trials and development when marketing approval is being sought, before the drug can go to market. This is referred to as patent term extension (PTE).

This PTE system incentivises companies to create more effective drugs to address illnesses, for example novel heart disease or cancer treatments. More drugs being developed in Singapore could mean not just more opportunities for Singaporean scientists and researchers, but also more access to innovative medicines for Singaporean patients. However, the existing patent system in Singapore is not aligned with PTE regimes in the US, EU and other countries such as Australia and Japan.

Under the Singapore system, drug developers are only considered for PTE when there are delays resulting from the regulatory administrative process for obtaining marketing approval. As Singapore's market approval system is remarkably efficient, PTE has been granted only once since the system was introduced in 2004. While the rapid market approval process is an asset to Singapore's system, the lack of recognition of the years spent in clinical trials when it comes to patent terms makes other jurisdictions more attractive places in which to file patents. Clinical trials across Asia are rising in number, but falling in Singapore.

Granted, there are costs and challenges involved in the process of reviewing Singapore's

PTE regime, but in the long run, the benefits will outweigh any cost and effort required.

A PTE regime that is aligned with international standards such as that of the US and EU would enable Singapore to gain greater recognition as a global IP hub. This would in turn enable Singapore to capture opportunities presented by growing IP activities internationally to drive business and economic growth. A globally competitive PTE framework would also reinforce Ipos' partnerships with IP offices in other countries, such as the Patent Prosecution Highway (PPH) and Asean Patent Examination Co-operation (Aspec), which allow patents filed in Singapore to be fast tracked in partner countries, and vice versa.

## MAINTAINING COMPETITIVENESS

Sustaining investments and growth in the biopharmaceutical and other IP-intensive industries is crucial to maintaining an innovative ecosystem in Singapore. A compelling PTE regime creates new incentives for research and development of new products that are subject to pre-market regulatory approval, thereby boosting Singapore's competitive position as a leading hub for biopharma R&D innovation. On the other hand, a PTE framework that is not aligned with global best practices may erode Singapore's competitive advantage vis-a-vis ambitious developing markets, where costs are lower.

As new medicines develop and launch in the Singapore market, Singapore will benefit from granting the same PTE treatments as the US and EU today. The global pharmaceutical market is expected to exceed US\$1.5 trillion in 2023, from US\$1.2 trillion in 2018, and Singapore is in pole position to capitalise on this economic opportunity. However, all the elements must be in place to ensure a mutually reinforcing ecosystem of growth and innovation.

Singapore has many strong qualities that make it an attractive investment destination – robust regulations, a deep talent base and world-class infrastructure, among others. Government agencies such as Ipos, the Economic Development Board (EDB) and the National Research Foundation (NRF) have done much to create a nurturing environment for innovators. These efforts have set a strong foundation in place for Singapore to be a regional leader in both IP and biopharmaceutical innovation. A robust and competitive PTE framework may just be the key to unlocking the doors leading to the next wave of growth.

Andrew Jenner is director-general of Interpat, and Christina Teo, executive director of Singapore Association of Pharmaceutical Industries

## Full Text

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