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Australian maverick charts synergies for biotech

Angela Yap

When Barry Marshall speaks, poeple listen. But this wasn't always the case. For more than 20 years, he was known as a rebel in medical circles. He disputed conventional wisdom that stomach and gut ulcers were caused by excessive acid, spicy foods or stress, and instead attributed ulcers to a bacterium, Helicobacter pylori.

Unable to find a human guinea pig, Marshall swallowed a petri dish of the potentially deadly bacterium to prove his point. It worked and scientists took notice, if only to have the chance of disproving him.

That didn't happen. In 2005, Marshall and Robin Warren were jointly awarded the Nobel Prize in Physiology or Medicine for their discovery of H pylori and its role in gastritis and peptic ulcers. Medical experts rank the discovery to be as significant as the eradication of smallpox and the development of the polio vaccine.

Marshall's daredevil act has been documented widely, from comic books to journal articles. It's also the reason why self-testing is now banned in scientific circles.

Today, he is not only professor of clinical microbiology and medicine at the University of Western Australia but also Western Australian ambassador for life sciences, speaking for the greater development and mobilisation of resources for biomedical sciences.

In town recently to address students of the Australian matriculation programme at Sunway University College, he spoke on the biotechnology landscape. "The past 10 to 15 years has seen the emergence of venture capital firms (VCs) that are spin-offs from pharmaceutical giants such as Pfizer. These VCs hunt for new discoveries, hot prospects and nurture their development for commercialisation."

Once the research looks marketable or profitable, the pharmaceutical buys into these companies. For drugmakers like Pfizer, with the patent of its blockbuster drug Lipitor expiring in about a year, the formation of an aggressive strategic investments unit solves product pipeline issues whilst minimising exposure risk to unproven but potentially lucrative technologies.

Marshall, however, deviates from the view that most entrepreneurs have of VCs as the preferred sources of seed funding. He proposes that governments step up to the plate and become more active in financing new ventures.

From his experience, investments in pioneering industries like biotechnology will see positive spillover effects, manifested in the transformed knowledge of its workforce and the ability to retain the country's best thinkers.

He says: "Governments need to accept the fact that they should pump money to subsidise biotech and research as much as they can and not be too focused on the outcome. The approach is, if we get an outcome, that's great. But if we don't get an outcome, we're not going to be too upset about it."

"There's a lot of excitement and discovery involved in a new biotech or in developing a new product. After five years, if you run out of money and it didn't work out, you've still invested in people who have a lot of business expertise, great management experience and, even if you're not successful, employees still have a strong resume," he adds.

Marshall's own experience as owner and founder of Ondek Pty Ltd, a Perth-based biomedical research, is proof of that. Since 2007, Ondek has attracted leading international scientists to relocate or to return to Australian shores.

The company is the first to conduct breakthrough research on vaccines using H pylori as a drug delivery platform to tackle global epidemics like SARS and HIV/AIDS. Employees gain entry into an exclusive club, giving these young scientists a chance to carve their reputation early on.

Marshall also believes the non-medical sciences may hold the key to the creation of the next "blockbuster" drug. "In medicine, the next great medical discovery could come out of chemistry, engineering or statistics, and I think you're going to reach a blockbuster product by having a new, original idea out of academia, not via mainstream practitioners. So, it doesn't necessarily follow that you have to be a doctor to find a cure for cancer any more."

There is also a different paradigm when universities and investors are involved in commercialising research. "VCs are looking for sure things. They're looking to turn a US$5 million (RM15.55 million) investment into a US$30 million one. But investors in universities, like me, are looking to make a US$5 million investment into US$5 billion one."

The Universities of Oxford and Cambridge have established enterprise units that are similar in purpose and social culture to pharma-backed VCs. This growing role of academia in business financing is directly reflected in the architecture of biotech in countries including Malaysia. Today, biotech communities are clustering more organically around centres of academic learning.

"One of the reasons why Stanford University is so successful is because they've spun off these little companies in the surrounding Silicon Valley and when they became successful, made a lot of money, they channelled endowments back to the university," says Marshall.

"The upside on creating local biotech and scientific successes in satellite cities around universities is that those entrepreneurs are going to feed back free expertise and financial funding to the universities," he adds. This gives credence to the change in Malaysia's approach to biotech development.

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Under the initial Biotech National Development Plan, the programme consisted of a concentric "Bio Valley". In 2005, this was replaced with a new strategy — the planned creation of dispersed biotech hubs in areas surrounding universities and centres of academic excellence such as Mardi, Universiti Putra Malaysia and Universiti Kebangsaan Malaysia.

However, as at February 2009, 71 out of a total of 98 BioNexus status companies were located in the Federal Territory and Selangor, indicating a potential one-sided development of hubs.

BioNexus status is a designation awarded by the Malaysian Biotechnology Corporation (BiotechCorp), an agency under the Ministry of Science, Technology and Innovation tasked with implementation of the Biotech Masterplan.

Ultimately, there needs to be a right balance between altruistic research and profit and gain, especially in the light of mega-stimulus projects. Marshall is optimistic on this score. "There are a few companies and people who have done this successfully, such as Genentech. In the end, you want to nurture good relationships between the universities and the spin-offs," he says.

Angela Yap is director of Akasaa, a strategic consultancy and training outfit. She can be reached at angela@akasaa.com.

Marshall proposes that governments become more active in financing new ventures, as there are positive spillover effects. Photo by Jazmint Lee