

Biochemist's quest to prove S'pore can succeed in life sciences

Shabana Begum

Associate Professor Too Heng-Phon has been on a quest for more than two decades.

He is determined to show the world that Singapore can be a scientific powerhouse, and he and 10 former PhD students are heading companies that are on the cusp of making a huge impact in areas from cancer treatment and diagnosis to sustainable food production.

The biochemist, 62, who has a black belt in karate, punches his way into the genetic world to uncover microscopic arsenals to solve global problems.

"I live my life by four principles. Work hard, play hard, die hard – which means don't give up easily, have grit," he said. "The fourth principle is, wherever you are, make sure you do good."

His laboratory at the National University of Singapore's Yong Loo Lin School of Medicine (NUS Medicine) is his students' playground. Among his 40 PhD students over the years, a large number of them went on to become researchers and helm biomedical start-ups – many of which stemmed from his lab.

Best-known among them is the company Mirxes, responsible for the world's first test kit to detect early stage gastric cancer through a blood test, or liquid biopsy. The kit illuminates tiny pieces of genetic material, called microRNA, that serve as biomarkers to detect the illness.

But just a decade ago, getting the authorities to have faith in microRNA and to fund the biotech firm was a tumultuous process, Prof Too admits. "I was an angry man in the early 2010s," he said.

"Back then, early diagnostics was a dream. Nobody invested in us, and people said we were wasting our time," recalled Prof Too, who co-founded Mirxes together with his former students Zhou Lihan and Zou Ruiyang.

He was just a day away from moving the venture to Hong Kong when some funding finally came, and he decided to keep the company in Singapore.

Things have looked up since. Mirxes has secured more than S\$75 million – the largest amount in funding raised by a home-grown cancer diagnostics company to

date. It was also featured at the 2022 National Day Rally when Prime Minister Lee Hsien Loong outlined Singapore's journey in becoming a biomedical hub.

In 2021, Prof Too received the President's Technology Award, one of the highest honours here for scientists and engineers, for potentially saving lives through the early detection kits.

And for his grit and achievements in advancing biomedicine and nurturing talent, Prof Too has been nominated for The Straits Times Singaporean of the Year award.

The Malaysian-born scientist worked at Harvard Medical School until the mid-90s, when he moved to Singapore.

He returned to the region because he wanted to be nearer to his ailing mother in Malaysia. While he received offers from other internationally renowned institutes, he chose the island state because it was fast-paced and progressive.

Prof Too became a Singapore citizen several years ago.

His wife, Dr Azlinda Amwar, 55, is an assistant director at Temasek Life Sciences Laboratory, and his 18-year-old son Zackaria Too, who is keen to read biochemistry, is interning at Mirxes before he enlists for national service.

Prof Too's life motto has rubbed off on his students.

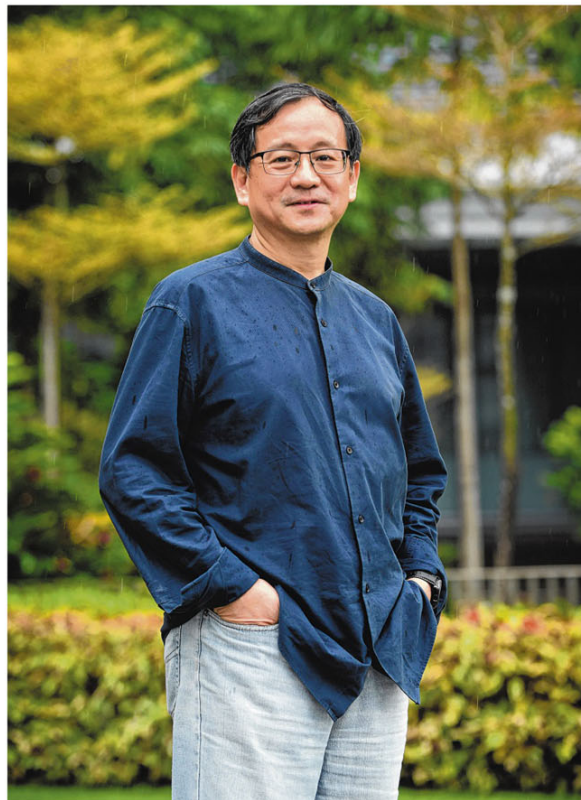
In 2005, Dr Sarah Ho, then an undergraduate, walked into Prof Too's lab, which was part of a programme that exposed students early to the field of research. She had no clue that she would stay there for 17 years. She went through steep learning curves at the start.

Prof Too said: "Everyone who comes into my lab gets moulded. It's a lot of work. It's very painful. They have to learn to be creative about the science."

This creativity cannot be bottled in the form of recorded lectures, and must be teased out face to face. So every week, Prof Too meets each of his charges in his office to walk them through their lab work and things that went wrong in their experiments.

"It even got to a point where I bought vitamins for the kids because I thought they didn't have enough to eat while working," he said.

Dr Ho, now 37 and a senior research fellow at NUS, said: "When we first started out, we struggled.



Associate Professor Too Heng-Phon and 10 former PhD students are heading companies that are on the cusp of making a huge impact in areas from cancer treatment and diagnosis to sustainable food production. ST PHOTO: ALPHONSUS CHERN

But Prof Too spent an enormous amount of time to develop us. There was no need for me to switch labs because I continued to learn and explore new areas with him."

She is now preparing to get her gene therapy start-up rolling, with Prof Too's guidance. In the targeted treatment she developed with colleagues, stem cells carry killer

genes to destroy aggressive cancer cells. They have also adapted the treatment for dogs with cancer.

In 2000, Prof Too was tasked to give politicians, judges, civil ser-

vants, journalists and members of the public lessons in the life sciences. That directive came from former Economic Development Board executive chairman Philip Yeo and government officials who felt that the biomedical space and deep tech would be the future, said Prof Too.

He got people excited about the life sciences by getting his students – who included Mr Yeo, then Minister of State for Trade and Industry Lim Swee Say, and former politician George Yeo – to don lab coats and sequence genes. He even took the lab to the Supreme Court to teach former chief justice Yong Pung How and other judges.

When he was a teenager growing up in Ipoh, his father, who worked in a coffee shop, borrowed money to send him to school in Britain because he was afraid his son was keeping bad company.

In memory of his late father, Prof Too recently set up the Too Joon Chew PhD Prize, a bursary awarded to top-performing PhD graduates at NUS Medicine. He plans to set up another bursary for NUS students.

With several companies on the brink of success, Prof Too said: "I tell my wife we will keep what we need. My son will earn his own money. And the rest, we will give it away."

On what made him determined to make a difference, Prof Too recalled the turning point in his life.

Days before setting off for Britain, he witnessed an accident that left an old man and his mangled trishaw sprawled on the road. Nobody helped him, so Prof Too picked him up, sent his trishaw for repairs, and made the elderly man a barley drink at his father's stall.

"When I looked into his eyes, he was so grateful. A feeling of calmness swept through me and lasted for weeks."

He has been drawing on that feeling throughout his life.

"It's not about what you get, it is what you give that matters," he said.

"If someone comes to shake your hand and say thank you for saving lives, that's enough."

nshab@sph.com.sg

SCAN TO WATCH
It's not about what you get, it's about what you give.
<https://str.sg/too12>

