In a six-part series sponsored by Spring Singapore, we look at innovative start-ups. **Joyce Teo** examines Clearbridge Biomedics

'Nerds' fight cancer with med tech

Their machine traps tumour cells; hope for personalised treatment

A COUPLE of self-confessed nerds seem an unlikely pair to lead the charge to a new medical frontier but there is no holding back entrepreneurs Johnson Chen and Chong Chee Wah, both 39.

The friends set a high goal – producing a machine that can trap rare cancer cells in blood samples and allow researchers to tailor a much more personal treatment for cancer patients and to better manage the progression of the disease.

The system could eventually even be used for cancer screening.

They have already built versions that can be used for research and are now working on selling them to top researchers across the globe.

Their machines are pricey – around $100,000 each – but the potential payoff is huge given the size of the market.

Clearbridge Biomedics, as their firm is called, has already sold "a handful" of the machines this year, says Mr Chen.

The machine can trap circulating tumour cells (CTCs) or rare cancer cells that break off from tumours and circulate in the blood stream.

Blood samples are run through a biochip laced with micro-structures to filter out the CTCs from the blood cells.

This is crucial, according to Mr Chen, because biomarkers are currently used to capture CTCs but these bind to the cancer cells and may destroy or modify them.

Mr Chong notes: "With our technology, we can retrieve viable CTCs."

Adds Mr Chen: "You don't have to take out the tumour. This is as simple as doing a blood test and then you can take out the CTCs to study it.

"It opens up the potential for personalised cancer treatment. We can not only count the number of cells, but also take the cells and do further downstream analysis. That's where the key value proposition is."

Their ambitious venture started less than three years ago when Mr Chen returned from a seven-year work stint in Hong Kong where he ran the venture capital arm of Pacific Century CyberWorks, the telecoms company owned by tycoon Li Ka-shing's son Richard Li.

Mr Chen got in touch with his old friends here. "I thought I'd better keep in touch with all these guys... they are very important and very smart people," he says.

One was Mr Chong. They had met in Hwa Chong Junior College when they part of the science quiz team as well as the computer quiz team.

Once they had caught up, they decided to start their own firm and went searching for viable technology to invest in.

"The background as to how we got into med tech was, A) we were full-blown nerds; B) I was going to be a doctor," says Mr Chen.

"The nice thing was the Singapore Government also likes this area... so we thought there is so much momentum there, it is a good opportunity for us."

That's when they found out about the micro-filtration biochip system developed by National University of Singapore's Professor Lim Chwee Teck.

Mr Chen knew Prof Lim from his university days in Cambridge – he was doing a bachelor's degree while Prof Lim was doing his PhD.

That link helped then get the ball rolling at Clearbridge Biomedics, in which Prof Lim and NUS have a small stake.

Clearbridge's Johnson Chen (left) and Chong Chee Wah have already built versions of their machine to be used for research and they are now working on selling them to top researchers across the globe. ST PHOTO: DESMOND LIM

Scheme to help innovative tech start-ups

SPRING Singapore's Technology Enterprise Commercialisation Scheme aims to foster a new breed of technologically innovative global enterprises.

It provides early-stage funding for firms to undertake research and development to help get products to the market.

Start-ups need at least 30 per cent local shareholding and group annual sales of not more than $100 million, or a staff size of no more 200, to qualify for grants of up to $500,000.

Their idea or project must be of a breakthrough level of innovation and be commercially viable.

The duo licensed the technology, worked on it and applied for Spring Singapore's Technology Enterprise Commercialisation Scheme (TECS) grant.

Securing a grant was validation that their idea was good, says Mr Chong, who was previously the programme manager for information security at DSO National Laboratories.

"We needed to go through several rounds and even had to present our idea to a committee to justify why it would work," he says.

The grant allowed them to focus on product development, which they completed in 18 months.

"A lot of professors think their technology is very easy to sell to the market. No such thing...

"They made it themselves so it works, but it's all like using scotch tape... if you want to get something that's usable 365 days, that's another story," says Mr Chen with a laugh.

With the help of the grant, they turn the NUS professor's handmade machine into semi-automated, manufacturable models.

"If you don't have this kind of (machines), investors will be asking where is the system? So the grant is able to help us bridge the gap," says Mr Chong.

"(Small and medium-sized enterprises) often lack resources to acquire new technologies or commercialise their technology ideas," says Spring's deputy director (technology innovation), Mr Fung Mok Wing.

Spring have various assistance schemes to help in this area.

"We hope to encourage them to adopt technology innovation as a competitive strategy to differentiate themselves from the competition," Mr Fung says.

Mr Chen says the priority at Clearbridge Biomedics, which employs eight people, is to get top-tier researchers to use their technology and then write about it in clinical publications to spread the word.

The partners hope the firm will be in the black in a few years' time and they have at least several years to go before an exit is possible.

Mr Chen adds: "The payoff is big but the gestation period is long.

"Nothing ventured, nothing gained ... and the sky's the limit," says Mr Chong.

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