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Biotech firm begins study for blood test which detects cancers early

Health Minister Ong Ye Kung (second from left) being briefed by Ms Jean Wong, M Diagnostics' head of clinical laboratory, during his visit to one of Mirxes' laboratories. On his left are (partially hidden) Mr Teo Cher Hwa, senior vice-president of health innovation delivery and chief of staff of Mirxes; and Dr Zhou Lihan, co-founder and chief executive of Mirxes. PHOTO: THE BUSINESS TIMES

Test is first to use unique combination of indicators to screen for multiple cancers

Clara Chong

A home-grown biotech company has begun a large-scale clinical study for a blood test that can offer early screening of up to nine different cancers that have high mortality rates.

The test by Mirxes uses a combination of biomarkers to screen for lung, breast, colorectal, liver, stomach (gastric), oesophageal, ovarian, pancreatic and prostate cancers.

Biomarkers are molecules or characteristics present in the body which can indicate diseases such as cancer. These include nucleic acids such as DNA or various types of RNA, proteins or chemical changes to these molecules such as methylation.

The test is the first in the world to use this unique combination of blood-borne circulating microRNA (miRNA) and DNA methylation biomarkers to detect multiple cancers.

Early detection of cancer is critical for patient survival. For example, a patient diagnosed with early stage lung cancer has a more than 80 per cent chance of survival compared with just 10 per cent for patients diagnosed with late-stage lung cancer.

Dr Zhou Lihan, co-founder and chief executive of Mirxes, said: "The goal is simple: To move the stage of cancer diagnosis from stages 3 and 4 – which is often the case now – to stages 1 and 2, based on a single blood test. This will improve survival rates easily by 50 per cent and possibly cut down the actual treatment costs."

Called Project Cadence, the study will receive an investment of at least $50 million over a three-year period, and is expected to recruit more than 12,000 individuals in Singapore, Mirxes said in a media statement yesterday.

There are also plans to expand recruitment overseas from countries such as the United States, China and Japan.

The study will also create more than 80 new positions here in research, manufacturing and data science over the next three years.

Singapore has seen a reduction in some types of cancer, such as lung cancer as smoking incidence falls.

But other cancers continue to creep upwards in tandem with changes in lifestyle and the ageing population, said Health Minister Ong Ye Kung, who was the guest of honour at the announcement ceremony yesterday.

"Despite this, the Singapore population is under-screening for cancer... We will try to correct this with Project Cadence," Mr Ong said.

"Hence, Project Cadence is well-aligned with Healthier SG. When we embarked on Healthier SG, we positioned it as shifting from acute care to preventive care. This can really happen in a big way because of technological advancements," he added.

Healthier SG represents a nationwide shift away from the traditional emphasis on illness-based hospital care towards a focus on preventive care. It keeps a lid on rising healthcare costs by tackling the problem at its roots, keeping people healthy for longer so they require less medical care.

"You can imagine that, in the future, genome sequencing will allow us to identify segments of society who may be slightly more susceptible to certain diseases, and very early interventions can take place. Simple interventions – exercise, diet – can be done because we can identify early who is more susceptible to certain chronic illnesses," Mr Ong said.

Yesterday, he witnessed the signing of a memorandum of understanding (MOU) between Mirxes and the National Cancer Centre Singapore, Nanyang Technological University, National University Hospital, Singapore General Hospital, Singapore Translational Cancer Consortium, Tan Tock Seng Hospital and the Yong Loo Lin School of Medicine.

The MOU creates a new public-private partnership to address the rising incidence of cancer here and the cost savings that would arise from early cancer detection.

The research is expected to recruit more than 12,000 individuals, including healthy average-risk individuals, high-risk individuals, patients with benign conditions and newly diagnosed patients who have not received cancer treatment before. It also expects to produce a significant number of intellectual property rights created on single- and multi-cancer biomarkers and test kits.

The intellectual property rights will be shared by Mirxes, the institutes of higher learning and public healthcare institutions, and the resulting blood test kits will be prototyped, manufactured and commercialised by Mirxes.

Professor Yeoh Khay Guan, lead principal investigator for the project, said: "Success in this venture would produce a game changer and a major breakthrough, a first of its kind blood test that can accurately detect early cancers and save many lives."

chongcjy@sph.com.sg