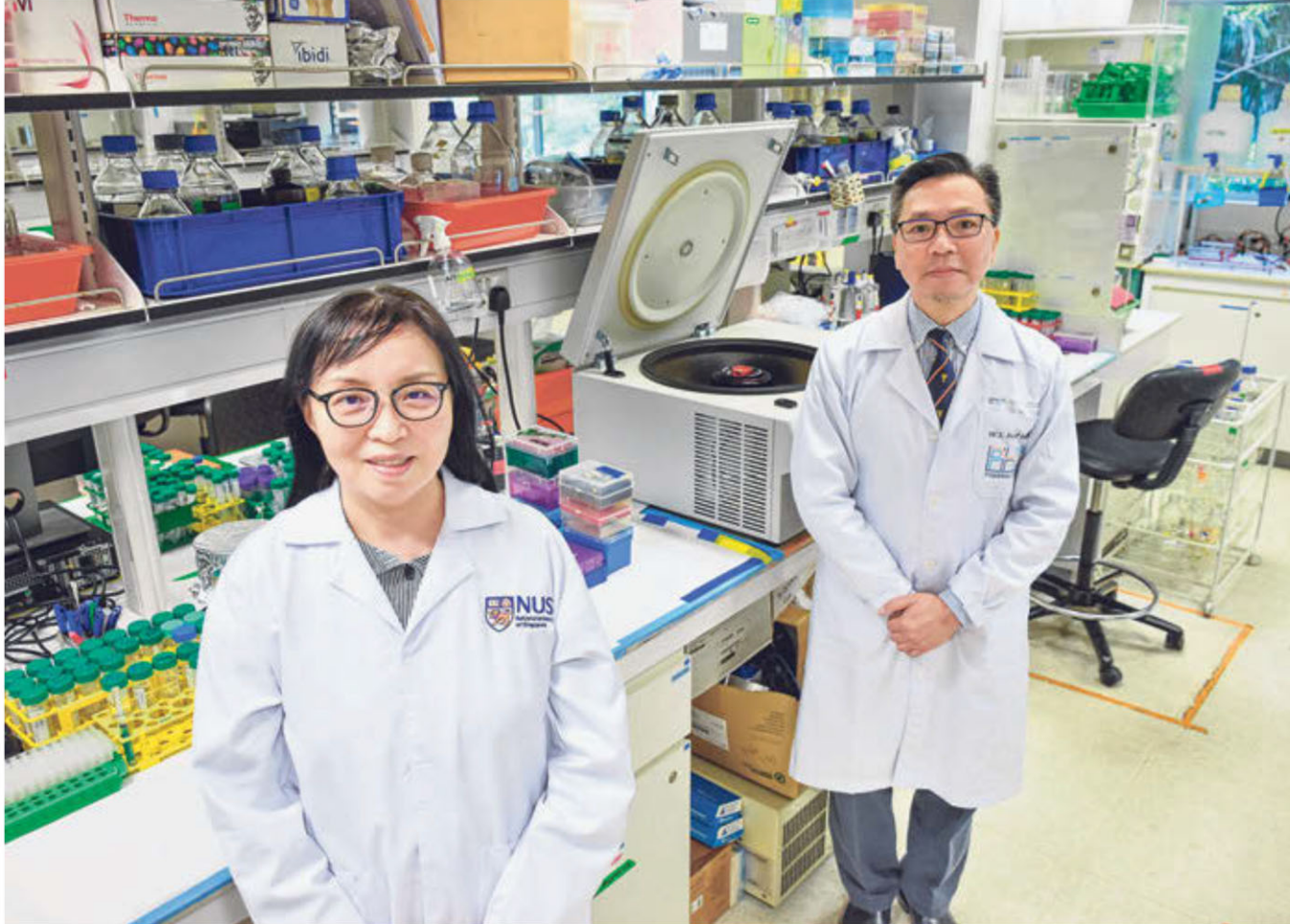


The research team, led by Associate Professor Ge Ruowen (at left) and including Professor Fred Wong, found that a certain protein in the lungs plays a key role in restraining inflammation in healthy lungs. It selectively eliminates certain cells in the lung that promote inflammation by targeting a signalling receptor that is present on the surface of such cells. PHOTO: NUS



NUS scientists' discovery could lead to cure for fatal lung disease

They use novel property of a protein that counteracts inflammation in those with COPD

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Health Correspondent

Scientists from the National University of Singapore (NUS) have discovered a novel property of a protein found in human lungs which could lead to the development of drugs to treat chronic ob-

structive pulmonary disease (COPD).

The debilitating, progressive lung disease is one of the leading causes of death worldwide.

It can be caused by long-term exposure to irritants or particulate matter, such as cigarette smoke, and symptoms include coughing, breathing difficulties, mucus production and wheezing.

One of the researchers, Professor Fred Wong of the department of pharmacology at the NUS Yong Loo Lin School of Medicine, told *The Straits Times* that COPD is currently the third leading cause of death in the world.

"Every year, three (million) to four million people die from COPD. This constitutes about 6 per cent of global deaths, and is

tremendous," he said, adding that there is currently no cure for COPD.

Associate Professor Ge Ruowen from the department of biological sciences at the NUS Faculty of Science, who led the research team, said that COPD patients have two key conditions: emphysema, where certain parts of the lung are destroyed while others are en-

larged, and chronic obstructive bronchitis, which involves the inflammation of small airways in the body.

She said: "COPD patients have difficulty breathing, which hinders their ability to work or exercise.

"They do not absorb enough oxygen, and this affects their heart function too. COPD is a very dangerous condition, but public awareness of it is very low."

Prof Wong said at the moment, drugs prescribed to patients who have COPD are mainly for relief of symptoms, and cannot stop the disease from worsening or reduce the mortality rate of patients.

They also cannot suppress the underlying tissue inflammation in patients.

However, the team discovered that a certain protein found in the lungs, called isthmin 1 (ISM1), plays a critical role in restraining inflammation in healthy lungs.

It selectively eliminates certain cells in the lung that promote inflammation by targeting a signalling receptor that is present on the surface of such cells.

But the number of ISM1 proteins in the lungs of a COPD patient may not be enough to counteract the inflammation that comes with the disease.

So the team conducted further studies to see if ISM1 proteins – manufactured in large quantities using special DNA technology – could be given to patients in droplet form in their airways.

They found that doing so reduced lung inflammation, suppressed the development of emphysema and restored lung functions.

The drug is currently in pre-clinical stages of development and, even if all goes well, may still take several years before it is available to the public.

Still, the scientists are hopeful that their discovery will help COPD patients.

They also plan to study if the protein can help to develop treatments for other inflammatory respiratory disorders such as acute lung injury, lung fibrosis and asthma.

"Our novel treatment suppresses the root cause of COPD, and opens up the possibility of developing this into a viable treatment for this debilitating disease that affects many patients around the world," said Prof Ge.

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