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Slimming drug could help stop lung cancer cells regenerating, Singapore scientists find

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SINGAPORE - Researchers may have found an unlikely way to deal with lung cancer cells resistant to treatment - a slimming drug.

Through a five-year study focusing on non-small cell lung cancer, the most common type of lung cancer, scientists from the Cancer Science Institute of Singapore (CSI) at the National University of Singapore and Beth Israel Deaconess Medical Center in America have found that lung cancer cells produce a protein known as fatty acid synthase (FASN).

This enzyme facilitates the production of palmitate, a saturated fatty acid which is believed to make lung cancer cells resistant to the chemotherapy drug tyrosine kinase inhibitors (TKI).

As a result, cancer cells which have not been defeated by TKI will be able to grow and spread, allowing a tumour to grow back.

Dr Azhar Ali, senior research scientist at CSI, said: "In normal cells, they do not produce FASN. The cells obtain fatty acid through uptake, because in our diet, we eat food that is fatty. However, cancer cells grow much faster compared to normal cells, and get their energy from taking up fatty acid and producing their own by expressing the FASN protein, the key enzyme in making fatty acid."

He added that cancer cells usually develop resistance to the drug after being exposed to it for around nine to 13 months, making them ineffective after a while.

On a more positive note, the study further revealed that the possible solution to this issue may lie in Orlistat, a weight loss drug. Through a series of experiments on cancer cells, Orlistat was found to block FASN, thus preventing the production of palmitate.

However, because Orlistat is poorly distributed throughout the body when it is taken orally, a modified version of the drug needs to be developed in order to target FASN, which Dr Azhar is currently working towards.

As lung cancer is currently the No. 1 cause of cancer death in men and No. 2 in women, Dr Azhar hopes that his efforts will be able to benefit those who are suffering from the disease.

"If the information I've gotten from my studies can be used by someone else, to be applied in a clinic and benefit patients, I think I'll be very happy," he said.

The research was published in the journal EMBO (European Molecular Biology Organisation) Molecular Medicine.

Correction note: The article was edited for clarity.