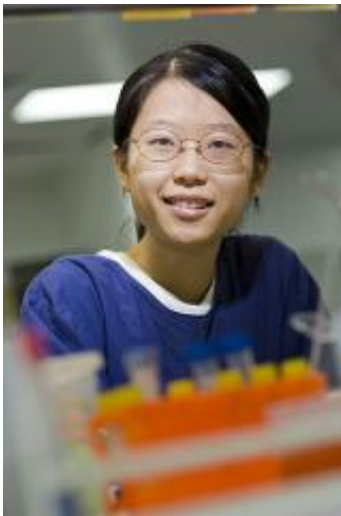


One step closer to turning off cancer genes with gene-silencing

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Ms Sherry Wu

(PhysOrg.com) -- Researchers at The University of Queensland have developed a way to deliver drugs which can specifically shut down cancer-causing genes in tumour cells while sparing normal healthy tissues.

They are currently looking at cervical cancer. While cervical cancer vaccines - co-developed by Professor Ian Frazer at UQ - are reducing the chances of infection with the virus that causes the cancer, many thousands of women worldwide are likely to contract cervical cancer in the next few decades.

Fresh Scientist Ms Sherry Wu hopes the new technique, which involves the use of coatings rich in fats, will hasten the application of RNA interference or gene-silencing, a technology which can inactivate individual genes.

Using this technology, she and her colleagues observed a 70% reduction in tumour size in a [cervical cancer mouse model](#).

“The traditional ways of packaging these drugs into suitable carriers are often complex and labour-intensive. The resulting products are also unstable at room temperature which is obviously not ideal for their clinical use,” says Ms Wu, a doctoral student at the UQ Diamantina Institute for Cancer, Immunology and Metabolic Medicine and one of the 2009 Fresh Scientists.

Until now, she says, treatment of cancer has relied mainly on surgery, [radiotherapy](#) or [chemotherapy](#). Though these strategies have benefited millions of cancer patients to date, the lack of tumour specificity of some of these agents often make patients feel sick or result in significant hair loss.

[RNA interference](#), a Nobel-prize winning technology discovered in late 90s, may be a way to solve this problem. It allows highly-specific silencing of cancer-causing genes in tumour cells.

But there are problems to solve before its use can be realized in clinics. These gene-silencing drugs are hard to deliver due to their instability as well as the lack of means for their efficient cell entry.

“In order to deliver these gene-silencing drugs safely and efficiently into tumour tissues in the body, we have to package them in lipid-rich carriers,” Ms Wu said.

The packaging method developed jointly by Ms Wu and Dr Lisa Putral shows promise in bringing the technology to clinics. The two researchers have been assisted by Dr Nigel Davies, an expert in drug delivery.

“We are excited about our findings and we are currently investigating the feasibility of combining this gene-silencing technology with low dose chemotherapeutic agents in cancer treatments,” says Associate Professor Nigel McMillan, of the Diamantina Institute, who supervised the work.

With cancer currently affecting more than 20 million people worldwide, the researchers believe that this latest development has made RNAi therapy for cancer treatment one step closer to reality.

“We are also currently looking into its potential use in other forms of cancer,” Dr McMillan said.

Sherry Wu is one of 15 early-career scientists presenting their research to the public for the first time thanks to Fresh Science, a national program sponsored by the Federal Government.

Provided by University of Queensland ([news](#) : [web](#))

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