

Quick, low-cost procedure developed for early detection of oral cancer

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Credit: Katarzyna Bialasiewicz, Thinkstock

A quick and simple procedure that would allow healthcare providers to screen for early signs of oral cancer at little cost has been developed by UTS researchers.

Currently, there are no routine screening tests for [oral cancer](#). But a simple blood test could change that, helping to stem the rise globally of

oral cancers such as cancer of the throat, voice box, mouth and tongue.

Dr Nham Tran and PhD candidate Samantha Khoury from UTS's Centre for Health Technologies have invented miLIFE™, a blood-based diagnostic test that looks at the profile of small molecules called microRNA to reveal the early warning signs.

The two Sydney researchers have developed an innovative blood-based test that can be easily administered by healthcare providers and is painless for the public.

The turnaround time for the entire procedure is approximately 48 hours, said Ms Khoury.

"What we are looking for in the blood sample are tiny molecules known as microRNA, which circulate in the blood," she said.

"Levels of five specific microRNA molecules are detected with miLIFE™ and compared with healthy, non-cancerous individuals. An overabundance or expression of these specific microRNAs will place you in a high risk category and you will be referred to a specialist for further examination.



Dr Nham Tran, Credit: Pamela Ajuyah

"You don't need a specialist to administer the test," she said. "When you visit your GP for routine checks of cholesterol, vitamin D, haemoglobin and so on, the same blood sample can be used to check for the presence of microRNA biomarkers."

About 300,000 new cases of oral cancer were reported globally in 2012. The main hurdles to treatment are late detection and low awareness of the disease.

Warning symptoms for oral cancer include pain, swelling, hoarse voice and difficulty swallowing – symptoms that can easily be dismissed or misdiagnosed as a common cold, said Dr Tran.

"The majority of oral cancer patients who visit the doctor have already

developed an advanced lesion, but by then it is too late," said Dr Tran. "At this stage, their diagnosis option is to undergo a tumour biopsy or a fine needle aspiration, both highly invasive and painful procedures.

"We hope that through miLIFE™ we can provide early intervention to decrease the number of Australians who are diagnosed with oral cancer each year."

The test is being filed under a UTS provisional patent and Dr Tran hopes it will be available to patients within two to three years.

"This technology has been in development since 2006 and has evolved thanks to the ongoing collection of consenting cancer patient samples from surgeons based at several Sydney hospitals. Our collaborations with the Sydney Head and Neck Cancer Institute, the Cancer Council and the Mt Sinai Hospital in New York have provided valuable contributions to this study. We hope to expand this work with the Vellore Christian Medical College Foundation in India.

"This is very pertinent given India has the world's highest rates of oral cancer with 40,000 cases diagnosed each year. The introduction of a robust cancer screen will provide a platform for effective cancer management in low resourced countries."

Provided by University of Technology, Sydney

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