

Researcher has smoking in her sights with \$20,000 fellowship

27 June 2012

Smoking has cost the lives of people close to Chamindie Punyadeera, pushing her to continue her research to develop saliva-based early diagnostics for cancer.

Dr Punyadeera's research at UQ's [Australian Institute for Bioengineering and Nanotechnology's](#) Tissue Engineering and Microfluidics (TEaM) laboratory has this week received a boost, with the awarding of a Queensland International Fellowship.

The fellowship, worth \$20,000, will help pay for Dr Punyadeera to travel overseas to develop strategic alliances with leaders in the field, as she works to replace blood tests with quicker and easier saliva tests for early disease diagnosis.

Dr Punyadeera is affiliated with The University of Queensland's School of Chemical Engineering, where she teaches undergraduate courses in diagnostics and biologics.

She said the fellowship would allow her to broaden the diagnostic applications of saliva from heart disease to also include cancers – particularly head, neck and oral cancers.

"At the moment there are no early detection methods for head and neck cancers. When diagnosed, the cancer is at an aggressive stage," Dr Punyadeera said.

"In Queensland alone 500 new cases of head and neck cancers are diagnosed every year, with a poor five-year survival rate of less than 30 per cent. This can be reduced with early detection.

"Human saliva is an ideal diagnostic medium for investigating smoking-related cancers as the direct impact of nicotine is seen within the oral cavity. Tumours within the oral cavity shed DNA and cellular materials into saliva. Analysing the saliva provides diagnostic information on the tumour.

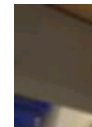
"Even tiny tumours hidden within the oral cavity will shed these materials into saliva and even if tumours are not accessible, analysing saliva will provide diagnostic information on whether a person has cancer or not – and you don't have to disturb the tumour."

Dr Punyadeera's research involved looking for DNA in a person's saliva to see if it contained markers which pointed to potentially cancerous cells.

Dr Punyadeera said saliva was "a mirror of our body's health and wellbeing".

The advantage in using saliva to detect heart disease and cancer was that it did not transmit diseases, as blood did.

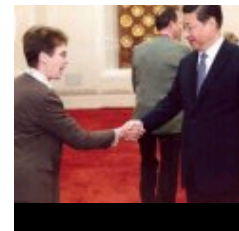
Saliva could be stored at room temperature, it did not clot as blood did, and it could be easily collected without a need for needles.



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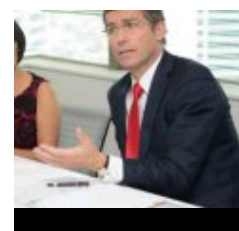


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" Our research program is all about finding an early detection method for head and neck cancers which will hopefully save lives.

" I' ve seen first-hand what carcinogens in cigarettes can do. My brother-in-law was diagnosed with lung cancer in early September and he died in March the following year.

" It was really sad. It was so rapid. He deteriorated. He was hallucinating and he passed away in the hospital with an infection."

Other members of Dr Punyadeera' s family are still struggling to give up smoking.

" In the future, the early detection of molecular changes in the oral tissue may lead to saving lives of Queenslanders through screening programs – and that is our research mission."

The fellowship will allow Dr Punyadeera to develop alliances with leading research institutes John Hopkins Hospital; Albert Einstein College of Medicine and Cold Spring Harbor Laboratory in New York; as well as University of California in Los Angeles; and Philips Electronics in the Netherlands.

To view a video of Dr Punyadeera discussing her research, please visit:

<http://youtu.be/l2E942Y109E>

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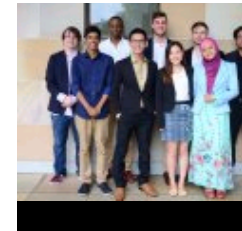
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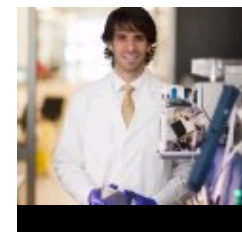
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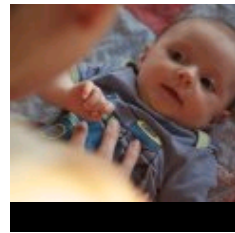
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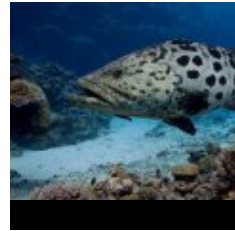
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