



University of Queensland developing a revolution in medical testing

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17 April 2007, University of Queensland researchers are using nanotechnology to revolutionise medical diagnostic testing of diseases such as cervical cancer.

Dr Simon Corrie, from UQ's Australian Institute for Bioengineering & Nanotechnology (AIBN), is part of a team looking at using biomarkers – substances in the body whose levels can indicate the presence of disease – for early detection of cervical cancer without invasive testing.

“Current diagnostic testing can involve biopsies of tissue and cells to look for changes with the results not known for a few days,” Dr Corrie said.

“What we are doing is looking at deeper molecular changes to detect diseases at a much earlier stage with results known straight away.

“We intend on developing the test that uses blood, urine or saliva so it is much less invasive.”

Dr Corrie said the process involved using various biomarkers, identified by collaborators at the University of Washington, to be detected and bar-coded.

Then it was a matter of using the technology to pick up the particular bar-coded and deliver a result.

“We are concentrating on cervical cancer at the moment, but this technology can be applied to any disease where the biomarkers are known,” he said.

“Initially these tests would augment Pap smears and invasive tests for cancer and other diseases, but as our understanding of the molecular basis of disease improves we envisage this technology becoming the gold standard test.”

He said the idea was elegant yet robust and that the team was now working on improving the technology so that tests were simple, accurate and dependable.

“We are using nanotechnology to miniaturise and simplify the test so it can be used just as easily in a doctor's surgery as in a pathology lab,” he said.

Dr Corrie is part of Professor Matt Trau's Nanotechnology and Biomaterials Centre, which focuses on nano-structured assembly and manipulation of matter to produce materials and devices for applications in medicine and biotechnology.

The AIBN is a multi-disciplinary research institute based at UQ, which brings together the skills of world-class researchers in the areas of bioengineering and nanotechnology to produce positive health and environmental outcomes such as biomedical delivery; bio-devices; tissue regeneration; and cell therapies.

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