

A Gold Mining Company Supports Rapid Cancer Test Study

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An Australian gold mining company donated \$ 300,000 as well as samples of gold to a rapid cancer test study after noticing the possibility of producing medical diagnostic kits using gold nanoparticles. This technology can detect cancer quickly and easily by changing the color of either gold nanoparticles or gold electrodes. The researchers used 3D nanostructures and DNA to produce diagnostic tools.

The development of a rapid cancer test at The [University of Queensland](#) will be aided by a \$300,000 donation from an Australian gold mining company.

The philanthropic funding from Evolution Mining will help researchers at UQ's Australian Institute for Bioengineering and Nanotechnology ([AIBN](#)) optimise the new gold nanoparticle blood test which could give oncologists an early and more accurate prognosis.

UQ's Professor Matt Trau said he and his colleagues welcomed the boost to their research. "I think it is visionary for a mining company to be supporting cutting-edge medical research," he said. "This funding will allow us to determine how early we can detect cancer in the body, and it will also allow us to further develop the technology so it can tell us what kind of cancer has been detected."

Evolution Mining's Group Manager for External and Indigenous Relations Anika McManus said when she heard about the research and the gold nanoparticle technology she wanted to know more. "I was immediately excited about this research and particularly hooked by the fact that gold, the commodity we produce, has the potential to help save lives around the world," she said.

Apart from the funding, Evolution Mining has also offered to provide samples of gold to be used in the fabrication of gold nanoparticles and gold electrodes.

UQ researchers Dr Abu Sina, Dr Laura Carrascosa and Professor Matt Trau recently

discovered a unique nano-scaled DNA signature that appears to be common to all cancers.

When examining patterns of molecules called methyl groups that decorate DNA, they found methyl groups are spread out across the genomes of healthy cells, but in cancer cells they cluster together at very specific locations.

They also discovered when placed in solution, those clusters of methyl groups cause cancer DNA fragments to fold up into three-dimensional nanostructures that stick to gold.

The team has developed novel technology to quickly and easily detect cancer by using either gold electrodes or gold nanoparticles that instantly change colour depending on whether or not those 3D nanostructures of cancer DNA are present in a blood or tissue sample.

Ms McManus said she and others at Evolution were delighted the partnership had come to fruition. “Evolution has a strong culture of innovation and we were keen to support UQ’s blue sky research and help keep crucial jobs and IP in [Australia](#),” she explained. “Most importantly, we are excited about helping this simple test for cancer come a step closer to potentially being in routine use in the medical system, saving countless lives.”

Professor Trau said the new discovery is a promising start. “We certainly don't know yet whether this discovery could enable the holy grail for cancer diagnostics, but it looks really interesting as an incredibly simple universal marker of cancer that is easy to detect,” he said. “With the generous donation from Evolution Mining, we will be able to explore the capabilities of this discovery much further.”

Read the [original article](#) on The University of Queensland.