

Researchers in Florida & Taiwan design device to detect breast cancer biomarkers from saliva drop

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Researchers from the University of Florida, US and National Yang Ming Chiao Tung University in Taiwan have reported successful results from a hand-held breast cancer screening device that can detect breast cancer biomarkers from a tiny sample of saliva. The biosensor design uses common components, such as widely available glucose testing strips and the open-source hardware-software platform Arduino.

The device uses paper test strips treated with specific antibodies that interact with the targeted cancer biomarkers. A saliva sample is placed on the strip, and pulses of electricity are sent to electrical contact points on the biosensor device. These pulses cause the biomarkers to bind to the antibodies and alter the charge and capacitance over the electrode. This produces a change in the output signal, which can be measured and translated into digital information about how much biomarker is present.

"In many places, especially in developing countries, advanced technologies like MRI for breast cancer testing may not be readily available. Our technology is more cost-effective, with the test strip costing just a few cents and the reusable circuit board priced at \$5", said the researchers.