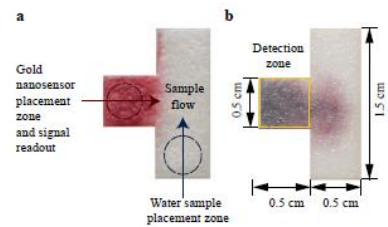


Microfluidic Device With Gold Nanosensor For Arsenic Detection



INVENTORS: Dr. Brendan MacDonald, et. al.

OVERVIEW: The technology relates to paper-based devices with a gold nanosensor that detects if the arsenic level of a sample exceeds 10 µg/L. The technology was designed so as to eliminate interference from naturally occurring metal ions.

TARGET MARKETS: Water QA, Mining, Research Tools, Food QA

BACKGROUND

Arsenic contamination of drinking water has been reported globally with dangerously high levels present in Argentina, Bangladesh, Cambodia, Chile, China, Ghana, Hungary, Inner Mongolia, Japan, Mexico, Nepal, New Zealand, Philippines, Taiwan, the United States and Vietnam. In the US alone it is estimated that over 56 million Americans are drinking tap water with average arsenic levels that pose health risks. The development of reliable tools suitable for the development of low cost tests has been hampered by the presence of other contaminants (lead, copper, zinc, iron, antimony, bismuth, selenium, silver and mercury) in real world water samples. Thus, the UOIT researchers looked to develop a technology that overcomes a number of bottlenecks to produce a low cost, reliable and rapid arsenic contamination detection test.

TECHNOLOGY OVERVIEW

The research led by Dr. Brendan MacDonald has led to a novel technology that enables users rapidly and reliably detect if arsenic contamination exists and if it exceeds or is below the WHO guideline levels of 10 µg/L. The technology is a microfluidic paper-based analytical device (µPAD) with a gold nanosensor functionalized with a α -lipoic acid and thioguanine (Au-TA-TG) that allows cost effective detection of arsenic. The technology was designed so as to eliminate any interference that could result from naturally occurring metal ions. Interference is prevented by using a specific pH value on the paper tests. The test strips are T-shaped and provide a red to black color change.

BUSINESS OPPORTUNITY

UOIT looks to work with companies in a way that helps develop a relationship that is tailored around their interests. Thus, we are happy to explore collaborations, licenses, options, assignments, etc. It is the belief that only through enabling the company to utilize their business model will the UOIT technology be able to make impact within the marketplace.

ABOUT UOIT

UOIT conducts high-quality, rigorous research designed to meet the research and development needs of business and industry and benefit society. Whether the focus is on developing hydrogen-from-nuclear or fuel-cell technologies, improving network security or understanding youth crime, we are committed to interdisciplinary research and development that addresses social, environmental, health and economic challenges.