Point-of-care prostate cancer diagnostic device using urinary biomarker

Published date: Nov. 12, 2018

Technology description

Recent statistics compiled by the CDC (USA) show that around 1 million men are diagnosed with prostate cancer each year. This is a serious disease with a m01tality rate of about 17%. However, the 5-year survival rate is I 00% if the cancer is diagnosed in the local stage (i.e. the disease has not spread to other organs beyond the prostate). Therefore, diagnostic tools enabling the screening test of cancer become of paramount imp01tance. Current screening tests include invasive procedures such as PSA (blood sample) test and biopsy test (when organ cells are extracted using a thin needle). The other drawback of such tests is that, the samples need to be sent to a testing lab and results often take a least a week. Here, we propose an invention that rapidly screens prostate cancer by analyzing the concentration of non-invasive biomarker: urinary spermine. Studies have shown that low spermine concentration (<300 ppb) in urine is a symptom of prostate cancer. The invention is based on simple extendedgate field effect transistor design making it cost-effective, easy to manufacture and p01table. We believe our invention can be used in a point-of-care setting and quickly read-out spermine concentration to the user, making prostate cancer screening a fast and painless task.

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