BioSpectrum the business of Bio & Health Sciences ASIA EDITION

Hong Kong designs ultrasensitive and portable COVID-19 antibody detection sensor

27 May 2022 | News

Suitable for instant detection and large-scale screening scenarios

A research team from the Department of Applied Physics of The Hong Kong Polytechnic University (PolyU) has successfully developed an ultrasensitive and portable COVID-19 antibody detection sensor based on organic electrochemical transistor (OECT) technology.

Fast and easy-to-use, the sensor is designed for testing the antibody levels of people who have either received vaccination or have been infected with the virus.

The COVID-19 antibody detection sensor developed by the PolyU research team comes with an array of advantages – it is highly sensitive, portable, rapid, easy-to-use and low-cost. The testing procedure is very simple. First, turn on the sensor and connect it to the smartphone app via Bluetooth. Then, drop 10uL of a saliva (or serum) sample on the transistor test area to allow the antibody-antigen reaction. Wait for five minutes, then extract the saliva sample and add an electrolyte drop on the test area. Press the button on the smartphone app to start the test. After about 20 seconds, the app will display the antibody content level of the saliva sample.

The whole detection process takes less than six minutes and the cost per test is only about HK$10.

The next plan of the research team is to apply for funding for clinical studies in collaboration with different medical and testing institutions. The research team expects that the novel device can be commercialised as soon as practicable and applied for antibody detection of other viruses, helping to fight diseases and making contributions to epidemiological studies and vaccine development.