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PolyU develops most comprehensive multiplex diagnostic system

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For detecting up to 40 infectious respiratory pathogens including 2019-nCoV in a single test



Infectious diseases represent an important portion of global public health concerns, in particular with regard to the current global outbreak of novel coronavirus (2019-nCoV). The challenge of frontline diagnosis in hospitals, clinics and ports is that infectious diseases could exhibit similar symptoms or can be asymptomatic.

The Hong Kong Polytechnic University (PolyU) has announced the development of the world's most comprehensive automated multiplex diagnostic system (the System) which includes a fully automated machine and a multiplex full-screening panel for the point-of-care genetic testing (POCT) of respiratory infectious disease including the 2019-nCoV.

In one single test and within approximately one hour, the System can identify 30 to 40 pathogens including seasonal influenza viruses, such as influenza A subtypes H1, H2 and H3; avian influenza viruses H5, H7 and H9; human respiratory syncytial virus; severe acute respiratory syndrome coronavirus (SARS-CoV); Middle East respiratory syndrome coronavirus (MERS-CoV) and 2019-nCoV. Leveraging the current polymerase chain reaction (PCR) technology, the system is fully automated from sample nucleic acid extraction and amplification, to signal detection and analysis.

The System adopts patent-pending microfluidic and biochemical technologies that achieve ultra-sensitive detection (down to 5 gene copies) and simultaneous differentiation of various pathogens with extremely high specificity. It is also user-friendly, with manual handling not being required throughout the testing process.

Photo Caption: (From left) Prof. Terence Lau of PolyU, Prof. Alexander Wai, Vice President (Research Development) of PolyU, and Dr Manson Fok, Chairman of the Board of Avalon Biomedical Management Ltd, present the automated multiplex diagnostic system.