Pioneering COVID-19 Test Detects Virus with Smartphone

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Aptamers detect SARS-CoV-2 with immediate result.

Test can be administered repeatedly and on a mass scale.

Montreal (QC), December 7, 2020 – Montreal-based Two-Photon Research Inc. announces **CAST**, a diagnostics platform that changes the way viruses are detected. The **CAST** platform uses TPR's patented Aptamer Molecular Photonic Beacon™ (AMPB) that photonically interfaces with smartphones.

The first application of **CAST** is for detecting SARS-CoV-2 to help control the COVID-19 pandemic.

During the test, the AMPB binds to the S1 protein of SARS-CoV-2 if it is present in the saliva sample. On binding with the S1 protein, the AMPB responds to the smartphone's LED flash. The light emitted by the AMPB is then detected by the smartphone's CMOS sensors. No photons, no virus.

The invention is based on the field of aptamers, short molecules complementary to the protein and other molecular strings that are detectable. By changing the aptamer multiple viruses or virus mutations can be detected with one test. The AMPB is supplied in a 4 mL vial along with a swab for the saliva collection.

The smartphone displays the result instantly. Moreover, every smartphone can store the results along with time and GPS information and communicate them if required. A smartphone app will be available for download from the app stores.

"Instant, accurate and low-cost testing that does not rely on laboratory testing is essential in containing the pandemic," says Najeeb Khalid, the company's CEO. "Together with vaccines we can control the COVID-19 outbreak and return our lives and economies to normal."

The company is currently completing in vitro testing with in vivo testing to follow.

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