

Resource Summary Report

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Mask-Based Covid-10 testing system using Exhaled Breath Condensate

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Protocol Information

URL: <https://dx.doi.org/10.17504/protocols.io.bkzzkx76>

Authors: John Daniels

Group: Coronavirus Method Development Community, Front Line Technologies, XPRIZE Rapid Covid Testing, Team Exhaled Breath Condensate

Summary: The Kinaptic mask-based COVID-19 testing system uses a unique Exhaled Breath Condensate (EBC) collector that converts breath vapor to a liquid biosample for rapid testing and wireless automatic contact tracing. Exhaled Breath Condensate (EBC) is collected from a mask-based EBC collector as a low cost disposable component. Our electronic biosensor detects even low concentrations of virus biomarkers if they are present in the EBC sample. Corona viruses have slowly evolving N-protein and quickly evolving S-protein. N-Protein testing screens for any corona virus infection / S-Protein screens for only COVID-19 infection. The Kinaptic mask-based COVID-19 testing system is a “two-stage filter”: 1) catch only of N-protein biomarker = trigger warning to get more stringent diagnostic and contact trace; 2) catch both N- and S-, or just S- biomarkers = more urgent need for immediate quarantine and medical attention. As the target biomarkers bind to the capture molecules, the electrical conductivity of the electronic biosensor changes. This change in conductive is amplified by our bluetooth electronics, analyzed to determine the presence and quantity of the target biomarker, and the test result wireless transmitted to a smartphone or directly to the cloud.

Affiliations: Kinaptic, LLC

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