

PRODUCT

A rapid point of care diagnostic device for detection of pathogens in exhaled breath.

INDICATION

Respiratory pathogen testing, point-of-care testing, diagnostic device.

VALUE PROPOSITION

- Quickly indicates if the subject is positive for a particular respiratory pathogen.
- Produces accurate results without the need for specialized equipment.
- Low cost and portable.

DEVELOPMENT STAGE

Proof of Concept

INTELLECTUAL PROPERTY

Patent Pending in US, Europe, Canada, China, and Japan

CONTACT INFORMATION

Saqib Sachani, PhD, MBA
Director, Business Development
& Licensing
sachans@ccf.org
216.672.1913

IDF: 2020-097

Rapid Self-Contained Breathalyzer Test System

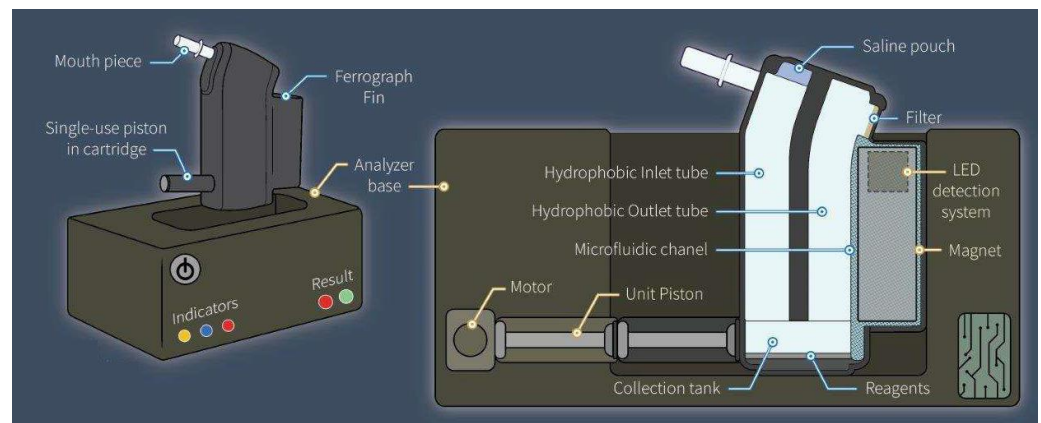
D. Geoffrey Vince, PhD, Aaron Fleischman, PhD, Feng Lin, PhD

UNMET NEED

Detecting respiratory pathogens before symptoms are present is key to controlling their spread. Rapid, accurate, and low-cost point-of-care (POC) diagnostic tests are required to achieve this. There is an unmet need for a sensitive, non-invasive testing platform that can rapidly be deployed as a POC test for respiratory-spread pathogens without the need for specialized equipment. Platforms that approach the sensitivity of RT-PCR and can detect multiple pathogens at once would represent a significant improvement over current tools.

SOLUTION

A test system that can indicate within 15 minutes if a particular respiratory pathogen is present in an exhaled breath sample. Subjects blow into the collection device where the exhaled breath is condensed, passed through a series of microfluidic chambers and contacted with magnetic nanoparticles coated with antibodies directed towards specific viral or bacterial antigens. Aggregates of magnetically tagged pathogen and microbeads form in suspension, creating a magnetic dipole moment for each aggregate. The suspension then passes into a microfluidic magnetic separator to sort the suspension, and a LED fluorescence detection system indicates the presence or absence of the aggregate (pathogen). Results are qualitative, and no special training or expertise is required to administer or interpret the test.



Breathalyzer pathogen collection and analysis system